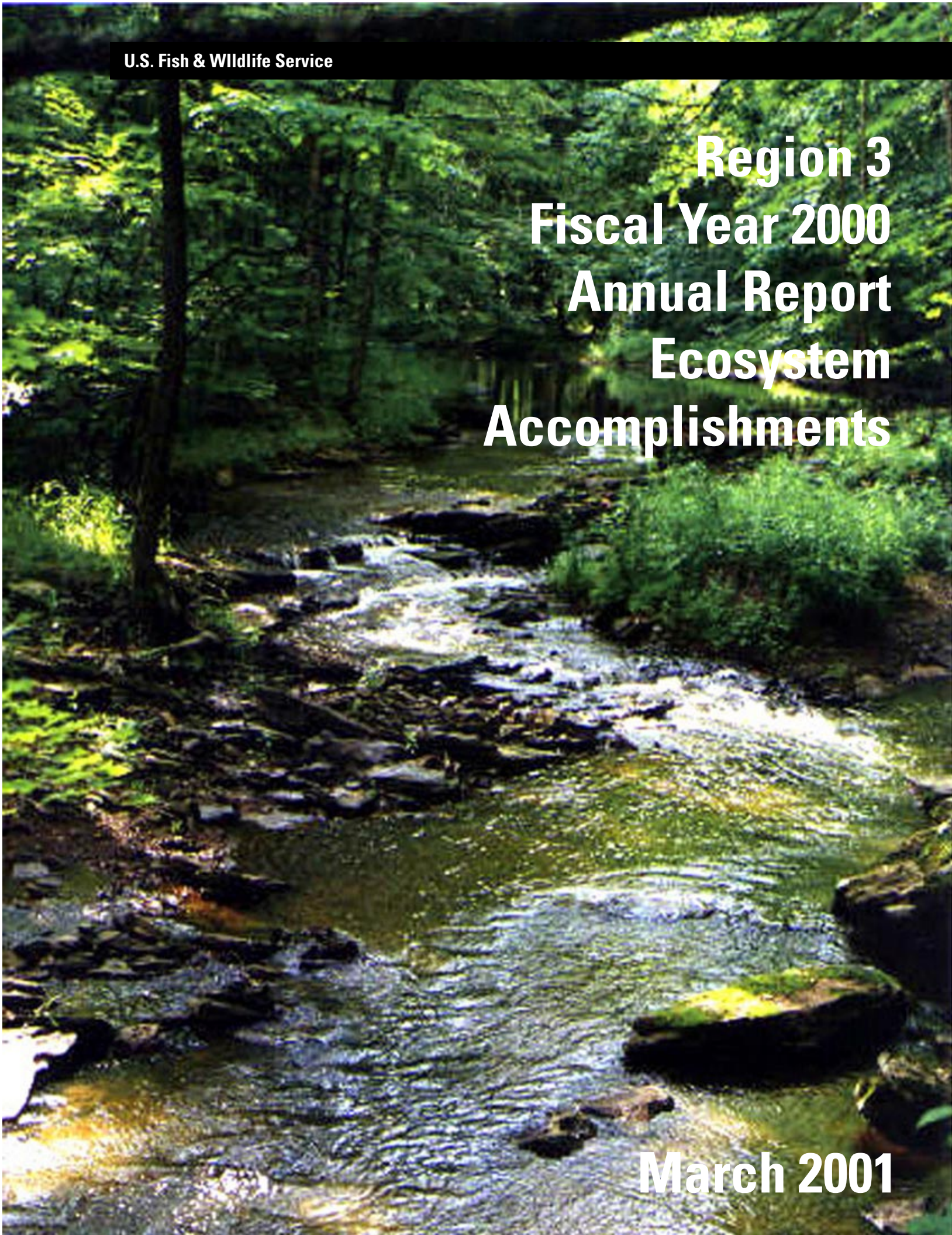
U.S. Fish & WIldlife Service



Region 3 Fiscal Year 2000 Annual Report Ecosystem Accomplishments

March 2001

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U.S. Fish & Wildlife Service

Fiscal Year 2000 Annual Report

About The Report

The Fiscal Year 2000 Annual Report is produced by the Region 3 External Affairs Office. The Report details accomplishments and activities of Region 3 from Oct. 1, 1999 to Sept. 30, 2000. Supporting accomplishments are submitted via the Region's Accomplishment Reporting System. The Report is designed to be published electronically, and can be viewed or downloaded in portable document format (.pdf) on the Region 3 Web site @ http://fws. midwest. gov Public requests for printed copies cannot be honored. Comments concerning content of the Report should be addressed to the editor at 612-713-5309 or by electronic mail at: scott_flaherty@fws.gov.

About The Cover

--Photo by Scott Flaherty

Little Otter Creek winds its way through Big Oaks National Wildlife Refuge in southern Indiana. At more than 50,000 acres, Big Oaks was a significant addition to the National Wildlife Refuge System in 2000.

Introduction

Fiscal Year 2000 Annual Report
Region 3

--Photo by Scott Flaherty
Regional Director Bill Hartwig

From the Regional Director

This Fiscal Year 2000 Annual Report highlights the outstanding work and accomplishments by dedicated members of the Great Lakes-Big Rivers Region, and our region's commitment to the resource and to the people who continue to enjoy the resource. Reports of individual station and program accomplishments contained in this report are at an all-time high, numbering more than 1,500 accomplishments. I welcome this opportunity to share these with you. Also, I want to thank everyone for your hard work, dedication and continued commitment to the mission of the U.S. Fish and Wildlife Service.

The number and quality of our accomplishments is a source of pride and inspiration for continued achievements in our work with fish, wildlife and plant resources in the Midwest. Our successes are the result of cross-program, interagency efforts and through partnerships both in and outside of the Service. The cultivation and sustainment of our partnerships is a major component of our success in conserving natural resources in the Midwest. Field and regional office staff have documented accomplishments involving our work with more than 450 partners and cooperators -- from Fortune 500 corporations to small town kindergarten classes-- during the year. The value of partnerships to accomplishing our mission cannot be overstated. Accomplishments reported via the Region's Accomplishment Reporting System shows that during Fiscal Year 2000, our Region took part in on-the-ground accomplishments totaling more than $150 million. The Service's financial contribution to these resource accomplishments amounted to just over $16 million.

There were many notable achievements in 2000. We continued to take the management lead with two endangered species–the gray wolf and the American bald eagle-- that are making their way off the Endangered Species List. We have worked with state, tribal and non-governmental groups to author the Service's proposal to reclassify the gray wolf from "endangered" to "threatened" in the lower 48 states. We also sought to designate critical habit for the Great Lakes' populations of the endangered piping plover. We worked to restore and protect habitat for other species such as the Karner blue butterfly, Eastern massasauga rattlesnake and Indiana bat.

Summary of Fiscal Year 2000 Accomplishments

--Photo by James R. Fisher

Regional Director Bill Hartwig (sunglasses), joins U.S. Fish and Wildlife Service Director Jamie Rappaport Clark and Big Oaks Refuge Manager Lee Herzberger to discuss refuge with Indiana Congressman Baron Hill (back to camera).

--Photo by Scott Flaherty

Conservation Partnership. *The Service partnered with commercial and conservation interests to raise more than $785,000 to fund a prairie wetlands conservation initiative. Pictured from left Kelly Joe Weiner, operations manager for Ron Schara Enterprises; Regional Director Bill Hartwig; Steve Jensen, Gander Mountain marketing specialist and Joe Duggan, public affairs director, Pheasants Forever.*

Removal of PCB-contaminated sediment from the Saginaw River in Michigan began in April, funded by a $28.2 million Natural Resource Damage Assessment (NRDA) settlement with General Motors. Wildlife habitat also benefitted from other NRDA settlements with American Chemical Services, and the Gary Lagoons in Indiana. The settlement will also restore coastal wetlands and lake plain prairies around Saginaw Bay. The Region also received more than $255,000 from the National Fish and Wildlife Foundation to help fund an experimental project to reintroduce migratory whooping cranes to the Eastern United States.

The National Wildlife Refuge System saw the addition of Big Oaks National Wildlife Refuge, a 50,000-acre parcel of unfragmented forest, grassland and stream habitat that is being managed for 120 species of breeding birds, 41 species of fish and 46 species of rare plants. Volunteer support to our region's refuges is envied throughout the Service as demonstrated by the Friends of Rydell NWR Association, which was named 1999 Friends Group of the Year by the National Wildlife Refuge Association. Two groups, the Friends of the Upper Mississippi River Refuges and the Friends of the Cache River Watershed helped raise more than $37,000 for restoration projects.

We can also count among our accomplishments the continued recovery of lake trout populations in the Great Lakes. Our lake trout and coaster brook trout restoration efforts are also being supported by our tribal partners. We are also working with our tribal partners to restore self-sustaining populations of lake sturgeon to Native American fisheries in northern Wisconsin and Minnesota.

This year also saw a major restructuring of the Service's management structure. Service-wide surveys of employees and managers initiated a return to Program management from Geographic area management. The restructuring created new opportunities for Region 3 with the creation of a new program area that merged Migratory Birds, formerly a part of Refuges, and Federal Aid. Our emphasis on the ecosystem approach to conservation was elevated with the creation of a new Special Assistant to the Regional Director for Ecosystems.

As we enter 2001, we are prepared for a new millennium of achievement. Working together as a team, engaged with our partners and our stakeholders, we have compiled an enviable record of achievement in our work to conserve our nation's precious natural resources. Our efforts in 2000, coupled with accomplishments of previous years, helped set new standards of excellence in fish and wildlife conservation. It is a pleasure to work with you. I congratulate you all for a job well done.

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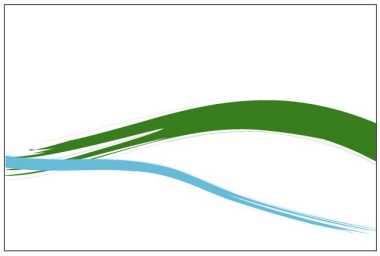
Midwest Natural Resources Group

Fiscal Year 2000 Annual Report
Region 3

M·N·R·G



Midwest Natural Resources Group

Description and Mission

The Midwest Natural Resources Group (MNRG) is a partnership effort to bring focus and excellence to federal activities in support of the health, vitality and sustainability of natural resources and the environment. The purpose of the Group is to develop processes, marshal resources among agencies and partners, seek opportunities for collaboration and communication, and provide timely assistance where it is needed. The agencies within the Group are committed to bringing results to the American public in communities of the Midwest.

In 1998 the Group was formally established. The agencies agreed on the need to attain proactive coordination, eliminate duplication and clearly establish the proper role for each federal bureau or agency within the 12 geographical area focus areas of the Big Rivers and the Great Lakes basins.

While many issues are dealt with on an inter-agency basis by agency staff, the MNRG is unique in that it is comprised of regional executives who have the authority to focus their agency's respective resources onto specific areas. For Region 3, the Group represents a source of multi-agency support and coordination for each of the Region's ecosystems. Ecosystem team leaders can use the Group to help build support for their team's goals.

The group consists of senior agency executives from 14 federal agencies with responsibility and authority throughout the Midwest. Approximately 200 natural resource professionals from these agencies also participate in the MNRG. Regional Director William Hartwig and 20 Service natural resource professionals are members of the MNRG. From May 1999 through June 2000 the Service was the lead agency and Mr. Hartwig was the MNRG Chair.

Description and Mission (continued)

The Group's membership includes regional executives of:

- Bureau of Indian Affairs
- Bureau of Land Management
- Department of Energy
- Federal Highway Administration
- National Oceanic and Atmospheric Administration
- National Park Service
- Natural Resources Conservation Service
- Office of Surface Mining
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U.S. Geological Survey

The mission of the Group is to provide an opportunity for federal agencies to:

- Coordinate, identify and enhance the accomplishments of existing efforts being undertaken by federal and non-federal partners.

- Explore and commit to, new opportunities for cooperation and collaboration.

- Achieve better reporting procedures to Congress and the public regarding federal progress and results within the Government Performance Results Act (GPRA).

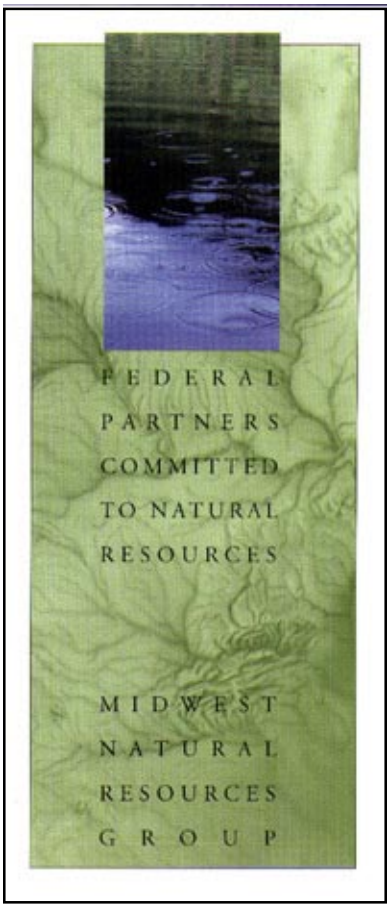
- Better utilize limited resources ro reap maximum benefits for the natural resources and people of the Midwest.

Summary of Fiscal Year 2000 Accomplishments

In order to facilitate its specific, on-the-ground, objectives, the Group decided to concentrate its efforts on 12 Midwest "focus areas," each of which fall within either the Great Lakes or Big Rivers basin. Focus areas within the Big Rivers basin are the Illinois River, Minnesota River, Missouri River, Ohio River, Ozark Plateau, and Upper Mississippi River. Focus areas within the Great Lakes basin are the Detroit River/St. Clair River, Fox River/Green Bay, Great Lakes (general), Saginaw River and Bay, Southern Lake Erie and Southern Lake Michigan.

During Fiscal Year 2000, the U.S. Fish and Wildlife Service, Region 3, took over as the lead coordinating agency for the Midwest Natural Resources Group (MNRG). The Region 3 External Affairs office was in charge of coordination and communications for the approximately 200 natural resource professionals who participated in the Group throughout the Midwest. Service activities included establishing a multi-agency Communications Sub-Committee; developing, organizing and maintaining a contact database for MNRG members; and, coordinating and hosting November and June MNRG Meetings and organizing the February MNRG Meeting.

The External Affairs Office developed and disseminated the following products: MNRG Charter; Operations Guide; draft Focus Area Map; Tribal Contacts for the MNRG; Focus Area Executive Summaries (and three updates); four MNRG Meeting Reports; Contact List by Membership; Contact List in Alphabetical order; 12 Focus Area Fact Sheets; Charge for Focus Areas; and Agendas for the Focus Area, Communications Sub-Committee, and Senior Leaders meetings. Additionally, the External Affairs manages and provides technical assistance for the MNRG Accomplishment Reporting System and manages five MNRG Contributed Fund Accounts.



Communicating Goals. *The Group produced a full color brochure that described its mission, focus areas and lead agencies.*

The Service, in coordination with other MNRG agencies, developed a MNRG Communications Plan, Logo, final MNRG and Focus Area Maps, Accomplishment Reporting System, MNRG Brochure, MNRG Website, and the ACE Award (Award for Conservation Excellence).

On June 14, 2000, Senior Leaders of the seven federal agencies represented by the MNRG signed an Intergovernmental Partnership Agreement to work in partnership with state and local governments, non-governmental organizations, private landowners and individuals to restore and protect the ecological integrity of the Illinois River Basin. Specifically, the Group decided to focus initial efforts on the Crow Creek watershed of the MNRG Illinois River Focus Area. The Region 3 Office of External Affairs, in coordination with the MNRG Communication Sub-Committee, assisted the focus area with the Agreement, as well as coordinating a press conference and site tour, notifying local media, notifying the local congressional delegation and developing press packets.

Additionally, more than 100 staff members from the Group's member agencies met as a general group, as well as within the specific focus areas they participate in, to discuss issues and projects at a staff level. At the end of this meeting, each focus area reported their progress and discussed any issues they had with the senior agency leaders. This unique feature of the Group allows members from all agencies, executives and staff, to gain a clear and concise understanding of current issues and efforts within the Midwest.

Goals for Fiscal Year 2001

The Midwest Natural Resources Group will advocate excellence in federal activities to support economic and natural resource vitality in the Midwest. The Group's key goals are:

- To report cooperative accomplishments in order to bring an understanding and awareness to the high economic, environmental and cultural value and needs of the Midwest.

- To focus on the fluid change and sustainability of natural resources, particularly in relation to continued economic development and urban growth.

- To garner federal focus and fiscal support toward the enhancement of these resources.

- To support demonstration projects in the Illinois River, Detroit River/St. Clair River, and Upper Mississippi River Watershed Focus Areas.

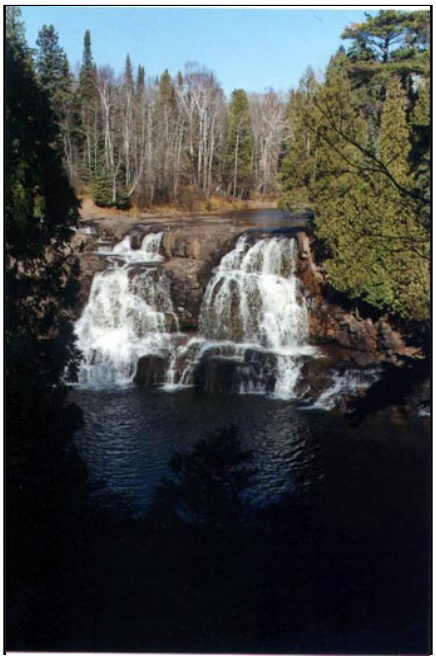
- To emphasize the Clean Water Action Plan's Focus on Healthy Wetlands.

- To focus on urban sprawl and the MNRG.

The Group aims to achieve its goals through ensuring that processes are developed, resources are identified and coordinated between agencies and partners, opportunities are sought for collaboration and communication, and timely assistance is provided, where needed, for the benefit of the American public in the metropolitan areas, communities, towns and farms of the Midwest.

Great Lakes Basin Ecosystem

Fiscal Year 2000 Annual Report
Region 3



--Photo by Scott Flaherty

The Gooseberry River in northeast Minnesota is one of 5,000 tributaries to the Great Lakes. The Great Lakes Basin contains 18 percent of the world's fresh water. About 35 million people live in the Basin and depend on its natural resources

Ecosystem Description

The Great Lakes Basin Ecosystem (GLBE) is the largest body of freshwater in the world. It holds 18 percent of the world's supply of fresh water; covers 95,000 square miles with 9,000 miles of shoreline; includes 5,000 tributaries; and has a drainage area of 288,000 square miles. More than 35 million people live in the Basin and depend upon its natural resources. This binational Basin shared between the U.S. and Canada is subject to ever-increasing national and international attention being focused on the introduction and expansion of nonindigenous species, such as the zebra mussel, ruffe, purple loosestrife, and others, the precarious nature of aquatic and nearshore communities and habitats, and contamination, all of which are affecting ecosystem health.

The extensive natural resources of the Basin provide numerous opportunities for varied fish and wildlife related activities, drinking water, recreation, production of hydroelectricity (40 billion kilowatt-hours annually), industrial water supply, waste disposal, and commercial navigation (163 million tons bulk goods annually). For commercial vessels traveling the Great Lakes-St. Lawrence Seaway system, the St. Lawrence River and Great Lakes comprise a journey extending 2000 nautical miles into the industrial and agricultural heartland of North America. Water-related outdoor recreational activities are valued at $15 billion annually, of which sport fishing activities contribute $4 billion.

The Great Lakes Basin supports a variety of fish and wildlife species of concern. Fish species of special interest include lake trout, lake sturgeon, lake whitefish, walleye, Pacific salmon, landlocked Atlantic salmon, and associated forage fish species. Native mussels are being seriously impacted by the exotic zebra mussel and are in danger of extirpation. The Basin provides critical breeding, feeding, and resting areas, as well as migration corridors, for waterfowl, colonial nesting birds, neotropical migrants, and many other species of migratory birds. Specifically, 31 species of migratory non-game birds of management concern to the U.S. Fish and Wildlife Service (Service) occur in this ecosystem.

A recent survey of biological diversity in the Basin identified 130 globally rare or endangered plant and animal species or ecological communities. The bald eagle, peregrine falcon, piping plover,

Kirtland's warbler, Mitchell's satyr butterfly, Indiana bat, gray wolf, lake sturgeon, deepwater sculpin, and pugnose shiner are a few of the many threatened, endangered, and species of special concern that inhabit the Great Lakes Basin ecosystem.

The Service's GLBE Team consists of 50 field stations representing our Fisheries, Ecological Services, Refuges, and Law Enforcement programs, as well as others, from Regions 3 (Great Lakes-Big Rivers) and 5 (Northeast). These team members are addressing the ecosystem's needs holistically and collaboratively. Member stations are addressing a variety of federal trust fish and wildlife resource issues on an individual basis, as well as on a broader, landscape scale.

--Photo by Scott Schlueter

Biologists Chris Lowie, left, and Tom Hughes of the Lower Great Lakes Fishery Resources Office, display a lake sturgeon taken from the Lower Niagara River near Lewiston, New York.

Summary of Fiscal Year 2000 Accomplishments

The GLBE Team had a variety of full-team accomplishments during Fiscal Year 2000. The Team was also active on several resource issues at the committee level. These priority resource issues are Lake Sturgeon Restoration, Great Lakes Islands, Invasive Species, and Migratory Birds. In addition to priority resource issues, the Team has identified priority geographic focus areas which serve as focal points for Team activities. Full-team, committee, and geographic-area accomplishments are as follows:

Ecosystem Approach Symposium

NPS photo

Ecological Services field offices continued their efforts to encourage state and local governments and non-governmental partners to protect habitat for the endangered piping plover in the Great Lakes.

The GLBE Team sponsored a symposium entitled "Ecosystem Approaches to Fish and Wildlife Conservation on the Great Lakes" during the 61st Midwest Fish and Wildlife Conference in Chicago. The symposium began with an introduction and overview of the Service's ecosystem approach to fish and wildlife conservation and, specifically, activities of the GLBE Team. Eighteen invited presenters then gave presentations focusing on the use of partnerships to address priority issues identified by the GLBE Team. The papers centered on Great Lakes fishes of management concern, migratory birds of management concern—including federal and state listed species and colonial-nesting species, invasive exotic species management, conservation of unique fish and wildlife habitats including near-shore islands, and environmental contaminants. Presentations also highlighted collaborative research and management efforts of Service partners throughout the Great Lakes. Partners in this symposium included Service Region-3 Directorate, four Service Fishery Resources Offices (Alpena, Ashland, La Crosse, and Lower Great Lakes), five Service Ecological Services Field Offices (Bloomington, Twin Cities, New York, East Lansing, and Green Bay), U. S. Geological Survey-Biological Resources Division (USGS-BRD) Great Lakes Science Center (Sandusky Biological Station and Lake Superior Biological Station), Michigan Department of Natural Resources, Ontario Ministry of Natural Resources-Lake Huron Management Unit, Central Michigan University, and the University of Minnesota.

Team Kitty Funds Five Ecosystem Projects

The GLBE Team funded five projects in Fiscal Year 2000 through the Team's kitty. The projects that were funded or partially funded through the Team kitty include the following: an inventory of existing databases of Great Lakes islands in the United States, printing and distribution of the lake sturgeon brochure "Lake Sturgeon: Giant of the Great Lakes," a marketing plan study for the Great Lakes Discovery Center, maintenance for the Great Lakes lake sturgeon web page, and materials for cormorant traveling displays and slide show. The kitty consists of donated funds from field stations throughout the GLBE.

Ecosystem Approach Advances in the Basin

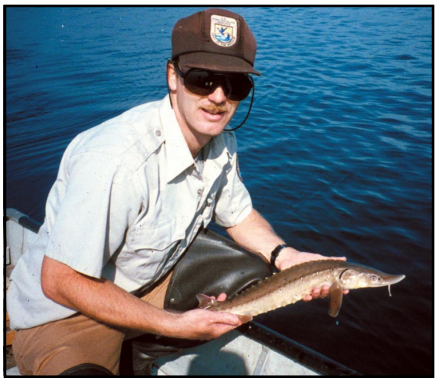
The Great Lakes Basin Ecosystem Team winter meeting was held February 23-24, 2000, in Ann Arbor, Michigan. At the meeting, the Team continued to make progress on several fronts towards implementation of the Service's Ecosystem Approach. A discussion took place regarding a possible shift in focus for the Team's kitty. In

Summary of Fiscal Year 2000 Accomplishments

particular, this shift would entail focusing on larger ecosystem-wide projects in the future, instead of several smaller projects. Top-ranking kitty projects for this funding cycle were a database inventory on Great Lakes islands and the printing of an educational brochure on lake sturgeon conservation. Since their inception in September 1999, the Team's GIS committee has begun to implement their short-term plan of developing data layers for Great Lakes islands; one of this project's objectives is to enable prioritization of the Great Lakes islands for conservation and acquisition. During the meeting, the Team formed an ad-hoc group to address the issue of stream and watershed restoration. This group will develop a draft work plan for presentation and approval by the Team at its next meeting. Other ongoing Team activities include participating in the National Cormorant Management Plan, enhancing communication within the Team's ten geographic focus areas, and coordination of USFWS responses to the Great Lakes Lake-wide Management Plans. Finally, the Team chose a new team-leader elect for the upcoming year and planned for its May meeting in the Thousand Islands area of New York. Partners in attendance included Michigan Department of Natural Resources, The Nature Conservancy, Michigan State University, USGS-BRD Great Lakes and Upper Mississippi Science Centers, and COSI Toledo Museum.

Lake Sturgeon Genetics Workshop

On December 8-9, 1999, state, federal, and provincial fishery managers and biologists, and lake sturgeon genetics researchers from throughout the continent met to coordinate and standardize lake sturgeon genetics work in the Great Lakes. Managers reviewed current research information, discussed management needs, and assessed techniques to establish a coordinated effort for future lake sturgeon genetics work. Outcomes included an agreement to share current genetics capabilities/technologies between researchers (e.g. new microsatellite genetic markers), identification of best methods of collection and analysis, establishment of a communication network between management agencies and research geneticists, identification of future information/research needs, and a process to accomplish those needs. The workshop was sponsored by the USFWS's Region-3 Federal Aid (through a cooperative agreement with the Michigan DNR), GLBE Team kitty, and the Great Lakes Fishery Trust. A report of proceedings, grant request(s,) and Request For Proposals for future research will be produced. Partners in this workshop included Service Lower Great Lakes Fishery Resources Office, Michigan Department of Natural Resources, Wisconsin Department of Natural Resources, Vermont Department of Fish and Wildlife, Ontario Ministry of Natural Resources, New York State Department of Environmental Conservation, USGS-BRD, University of Wisconsin - Center for Great Lakes Studies, Ohio State University, University of Guelph - Ontario, Stockton College - (Pomona, New Jersey), Michigan Technological University, University of California -Davis, Brooklyn College of the State University of New York, Central Michigan University, Southern Illinois University, Consumers Energy (Jackson, Michigan),



--USFWS Photo

The Service's Great Lakes Basin Ecosystem Team is partnering with other state and federal agencies to restore lake sturgeon in the Great Lakes.

Great Lakes hatcheris produced and stocked more than 4 million yearling lake trout during Fiscal Year 2000. Most Service stocking on the Great Lakes is accomplished by the Region's venerable MV Togue.
--USFWS Photo

Michigan United Conservation Clubs, Little Traverse Bay Bands of Odawa Indians, and Sturgeon for Tomorrow.

Through the GLBE Team, the Lake Sturgeon Committee has taken a leadership role in trying to coordinate and standardize lake sturgeon genetics activities in the Great Lakes Basin. In order to better guide lake sturgeon restoration and enhancement efforts in the Great Lakes, resource managers need a better understanding of the genetic structure among populations. The document entitled, *Great Lakes Lake Sturgeon Genetics Status Assessment: An Analysis of Samples, Methods, and Standardization* (Lowie 1999) has been completed. The genetics workshop provided a forum for biologists, managers, and geneticists to discuss the current state-of-knowledge, identify Year information needs, and standardize further collection and analysis of genetic samples. The minutes from the workshop have been completed and distributed to participants and GLBE Team, Lake Sturgeon Committee members. A proceedings document will be available in the near future, which will include final recommendations for future sample collection, distribution, and analysis. As a result of the workshop, the Service is leading a cooperative effort for future basin-wide research, where some funding has been secured. Additional funds are needed for sample collection, stock structure analysis, and preparing a basin-wide management plan. The comprehensive project proposal remains a collaborative effort among and between natural resource agencies and geneticists.

Lake Sturgeon Brochure

In September 2000, 25,000 copies of the brochure *Lake Sturgeon: Giant of the Great Lakes* were distributed to Service field stations across the Great Lakes basin. The brochure will serve as an effective tool to educate the public about the biology, fishing history, status, and conservation of lake sturgeon in the Great Lakes. It also highlights the efforts of the Service and the importance of

Summary of Fiscal Year 2000 Accomplishments

partnerships in restoring the lake sturgeon. The brochure concludes by outlining measures that the public can take to aid in the conservation of this ancient fish. "Lake Sturgeon: Giant of the Great Lakes" represents the culmination of several years of work by members of the GLBE Team's Lake Sturgeon Committee, with project leadership by Henry Quinlan. Chuck Traxler (External Affairs) and Kim Mitchell (Ecological Services) also provided assistance on the project. Financial support for the project came in part from the GLBE Team and the Service's Region-3 Fisheries Program.

Lake Sturgeon Web Page

Fishery biologist Tracy Hill has completed a major upgrade to the Great Lakes Lake Sturgeon Web Page (www.fws.gov/r3pao/sturgeon). The page was created and is maintained through funding from the GLBE Team. The page consolidates information from numerous Service field stations, resource agencies, and universities that are conducting lake sturgeon projects in the Great Lakes Basin. The web page also serves to educate the public and scientific community about the Service roles, responsibilities, and activities regarding depleted native species such as lake sturgeon. The page now contains information from 11 Service offices, three state agencies (Michigan, Ohio, and Wisconsin) three Ontario Ministry of Natural Resources Lake Management Units (Superior, Huron, and Erie), and four universities (Central Michigan University, University of Michigan, Michigan Technological University, and Cornell University). In addition to the agency and university contacts, the page contains the research priority needs of the GLBE Team Lake Sturgeon Subcommittee, Great Lakes Lake Sturgeon Genetics Status Assessment, and links to other sturgeon sites. The site has had approximately 7,500 hits per month since posting in April 1998. The page received over 10,500 hits in August and November 1999. Partners include three state agencies (Michigan, Ohio, and Wisconsin) three Ontario Ministry of Natural Resources Lake Management Units (Superior, Huron, and Erie), and four univerisities (Central Michigan University, University of Michigan, Michigan Technological University, and Cornell University). This is the GLBE Team in action.

Coordination and Collaboration

The Lake Sturgeon Committee convened a full Committee conference call on January 10, 2000 and a full meeting on June 29, 2000. Also, one member was on the steering committee for a workshop entitled, "Research and Assessment Needs to Restore Lake Sturgeon in the Great Lakes" on June 27-28, 2000, where many other Committee members attended. During Committee events, members provided updates on action items, prioritized project proposals, and discussed emerging issues that needed to be addressed. Smaller group conference calls also took place throughout the year to finalize project proposals.

Great Lakes Island Inventory

The Great Lakes Islands Committee of the GLBE Team has collaborated with a group of team members with expertise in Geographic Information Systems (GIS) and Decision Support Systems (DSS) to create an inventory of Great Lakes Islands. A computerized DSS will be developed for islands in the Great Lakes Basin, incorporating GIS databases and a variety of non-spatial information. The DSS will be made accessible from the desktop of all Service field stations that manage resources within the Basin. The DSS will facilitate decision-making for land acquisition, environmental review, and management planning, and provide a valuable tool for communication and outreach. For example, Great Lakes islands will be reviewed for natural resource values and threats, and for their potential for acquisition by the National Wildlife Refuge System. The DSS currently in use on the Upper Mississippi River is a model for this project. This project will be invaluable in assisting in the development of recommendations for implementation of geo-spatial technologies to support Service Great Lakes resource management issues. Beyond just providing a useful product, this project will promote resource knowledge integration and sharing, as well as cooperation, understanding, and appreciation of Service Great Lakes activities with partners and the public. After the demonstration project has been completed for Great Lakes islands, the DSS will be broadened to include other Great Lakes habitats. Partners in this effort include USGS-BRD Upper Mississippi and Great Lakes Science Centers and Michigan State University.

Migratory Bird Projects

Migratory Bird funds were used for two projects at the Montezuma National Wildlife Refuge. Both projects were completed and successful. At the St. Lawrence site, approximately 300 acres of grasslands were restored. The field work has been completed for the study at the Conostoda Mucklands. The report on this study will help to analyze the role that this area plays in the ecosystem for migratory birds.

Invasive Species

--USFWS Photo

Zebra mussels' affect on the ecosystem is among invasive species issues addressed by the Team.

Invasive species issues and concerns have gained national and international recognition as one of the greatest threats to global ecosystem diversity. Ecosystem teams provide a mechanism to address invasive species issues through cross-programmatic coordination, with the support of local partners. The GLBE Team Invasive Species Committee was established to advance prevention, control, monitoring, detection, research, education, and coordination efforts within the basin. Priority actions were identified by the Committee addressing education, research, and coordination needs. The Committee however, elected to focus on educational needs and developed a workplan to guide activities into 2001. The Committee developed a list of image and slide collections available for use in presentations and other educational activities to assist Service staff throughout the basin.

Summary of Fiscal Year 2000 Accomplishments

Duluth/Superior Harbor Resource Issues

The greater Saint Louis River Estuary system is a geographic focus area within our GLBE Team structure, and it represents a unique assemblage of natural resources (a freshwater estuary). Historically, there have been numerous industrial developments that have shaped the harbor as it exists today—a busy, international port with related industrial developments that serve the energy, agriculture, timber, and mining industries. The harbor also contains a remarkable array of aquatic and terrestrial resources, including species of concern, state-listed threatened species, federally-listed threatened species, migratory birds, anadromous fish and a significant tributary to the Mississippi Flyway. The Twin Cities and Green Bay Ecological Services Field Offices and the Ashland Fishery Resources Office are coordinating with the numerous federal, state, local, tribal, and commercial and non-governmental organization interests to address natural resource issues in this focus area. The team recently entered into the development of a Cooperative Agreement with the Harbor Citizens Action Committee to work toward a comprehensive natural resources plan and to extend both our financial support and our technical assistance capabilities toward this effort.

Fiscal Year 2001 Goals

In Fiscal Year 2001, the GLBE Team will focus much of its efforts on the basin-wide issues of lake sturgeon restoration and island conservation. Both of these issues will directly benefit from the broad-range of expertise within the Team in areas such as migratory birds, invasive species, and habitat restoration. Tools that will be used to accomplish the team's proposed tasks include Geographic Information Systems/Decision Support Systems and Outreach.

Great Lakes Islands

--USFWS Photo
Big Charity Island lies near the entrance to Saginaw Bay in Michigan.

There are about 30,000 islands within the Great Lakes and most are found within the Canadian waters. These islands form the world's largest freshwater island system; however, little is known about them. The island committee recognizes the importance of islands to wildlife—particularly migratory birds, fish, and endangered species–and also the need to complete an overall assessment of the islands for protection and restoration efforts. Activities in Fiscal Year 2001 include the following:

- Collaborate with the GIS/DSS committee to gather pre-existing information on the Great Lakes islands.
- Begin to use the Decision Support System to develop strategies for conservation of Great Lakes islands.
- Develop a brochure for outreach and public education efforts.
- Construct kiosks that will be strategically located at high public use areas to provide information on the importance of islands and the Service's efforts in conserving them.

Lake Sturgeon Restoration and Fish Passage

The lake sturgeon has been identified as a Fish Community Objective by the Lake Committees of each of the Great Lakes. The Service's efforts to restore the lake sturgeon throughout the Great Lakes are addressing restoration on several fronts, including population assessment, assessment of the genetic make-up of various stocks, development and implementation of recovery plans, and development of fish passage technology. Given the benefit of a greater level of coordination and collaboration between team members and Service programs, as well as among other stakeholders, the GLBE Team established a Lake Sturgeon Committee to identify Year, coordinate, and undertake activities with appropriate internal and external partners. The Committee will address several activities in Fiscal Year 2001:

- Develop an inventory of Great Lakes tributaries that currently and historically provided lake sturgeon populations and habitat, and of barriers, e.g., hydro dams, navigation dams, etc., located on those tributaries, and explore opportunities to provide the inventory in a GIS- and interactive web-based format. This effort will help to identify and prioritize restoration and fish passage opportunities and needs.
- Develop an inter-agency database for pertinent lake sturgeon tagging information collected by the Service and partners to assist in planning and conducting restoration efforts.
- Address needs identified in the Fiscal Year 2000 status report of lake sturgeon genetics information, as funding becomes available.

Fiscal Year 2001 Goals

• Compile existing information on contaminant body-burden levels of lake sturgeon, which will identify data gaps and research needs related to the impacts of contaminants on sturgeon populations and on upstream fish passage opportunities.
• Develop a prioritized list of research needs for lake sturgeon in the Great Lakes.
• Begin developing a Great Lakes Basin-wide Enhancement Plan.

Migratory Birds

--USFWS Photo

The Great Lakes Ecosystem team will work to support the National Cormorant Mangement Plan.

Lower water levels in the Great Lakes are causing significant impacts on colonial nesting waterbirds. Committee members are in unique positions to effectively coordinate conservation actions and activities for the benefit of colonial waterbirds. A number of activities will be continued from Fiscal Year 2000 and initiated in Fiscal Year 2001:
• Provide support and coordination with the Island Committee regarding migratory bird issues on Great Lakes islands, focusing on identification of islands that are important to colonial waterbirds and in need of protection.
• Focus on common tern colony dynamics and development of a stewardship program for colonies that would benefit from management actions, including those outlined in the Great Lakes Common Term Status Assessment.
• Review dredging permit applications for potential beneficial uses for common tern colony sites.
• Coordinate and cooperate between committee members and others on priority colonial waterbird issues, surveys, and assessments, including participating in the development of the Great Lakes component of the North American Colonial Waterbird Conservation Plan.
• Continue to support double-crested cormorant management in the Great Lakes within the context of the National Cormorant Management Plan.

Invasive Species

Ecosystem teams provide a mechanism to address invasive species issues through cross-programmatic coordination, with the support of local partners. The GLBE Team's Invasive Species Committee was established to advance prevention, control, monitoring, detection, research, education, and coordination efforts within the basin. The committee will focus on the following activities addressing educational needs during Fiscal Year 2001:
• Coordinate with the GLBE Team Outreach Committee to develop an Invasive Species web page as part of the Team web site.
• Draft a proposal to sponsor workshops for Great Lakes basin Service staff conducting activities on Service lands. The workshop will address identification, ecological impacts, and control/management of invasive plant species.
• Develop a general presentation (Power Point) to be used as a "marketing" tool by Service staff throughout the basin highlighting invasive species activities, accomplishments, and needs on Service

Fiscal Year 2001 Goals

lands in the Great Lakes basin; aquatic nuisance species activities, accomplishments, and needs in the Great Lakes basin; and the success of the Sea Lamprey Control Program.

Geographic Information Systems

Geo-spatial data can assist management efforts in the Great Lakes basin at many scales ranging from small, site-specific projects to basin-wide examinations. Because data are collected in many different formats, integration of data sets is difficult. Management decisions are often hampered by a lack of critical information that may exist but is either not immediately available or not in a useful form. Geographic Information Systems (GIS) and Decision Support Systems (DSS) are mechanisms that can be used to provide managers with geo-spatial information needed to make sound resource management decisions. These mechanisms provide managers with the capability to integrate and analyze multiple data sources on a desktop computer. The committee will be focusing on the following tasks during Fiscal Year2001:

- Identify Year and summarize Great Lakes basin issues that can be addressed using geo-spatial technologies.
- Inventory existing geo-spatial capabilities, including hardware, software, staff time, and expertise.
- Develop recommendations for implementation of geo-spatial technologies to support Great Lakes basin management issues.
- Develop priority information needs with the Great Lakes Islands Committee for a basin-wide islands demonstration project.
- Acquire pertinent databases on Lake Michigan islands through data-mining exercises.

Outreach

In Fiscal Year 2001, the Team will complete the initial phase of website enhancement. The website is a method through which the Team can reach all of its partners and customers, including the general public, state natural resource agencies, tribes, and Congress. In addition, the website serves as a important means of communication within the Service and GLBE Team. The initial phase of the website will include the following:

- Acquire a URL that is recognizable to users
- Include an ecosystem description, an ecosystem map, Team accomplishments, work plan, meeting minutes, annual reports, and other Team documents
- Develop pages for two of the Team's committees and two geographic focus areas
- Establish links from the Team page to the homepages of Region 3, Region 5, Washington Office, Great Lakes lake sturgeon website, USFWS National Ecosystem Conservation site, Great Lakes Information Network, Midwest Natural Resource Group, International Joint Commission, and other related groups

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Mississippi Headwaters - Tallgrass Prairie Ecosystem

Fiscal Year 2000 Annual Report
Region 3

-USFWS Photo by Dave Mattsson
Agassiz NWR in northwest Minnesota has been home to extensive research on moose, wolf and other species.

Ecosystem Description

The Mississippi Headwaters/Tallgrass Prairie ecosystem includes the majority of Minnesota and portions of Wisconsin and Iowa. The ecosystem is one of transition from prairie parkland, to Eastern broadleaf forest, and then to laurentian mixed forest. Land uses and conditions range from northern forests dominated by tourism and timber industries, to vast areas of intensively used agricultural lands, typically containing severely fragmented and degraded remnants of the tallgrass prairie. A major threat to the ecosystem is the continued loss and fragmentation of grassland, wetland and native woodland habitats for conversion to agricultural and other land uses. Degradation of remaining wetlands, lakes, and rivers due to runoff from agricultural lands and other non-point or point source discharges is also a concern. Timber harvesting, mineral extraction, and increasing pressures from recreational uses are problems in the northern reaches of the ecosystem.

Within this ecosystem, the Service seeks to find a balance between its federal trust responsibilities and the economic needs of its constituents. Trust responsibilities include protection, enhancement, and restoration of migratory birds, endangered/threatened species, interjurisdictional fishes, and lands where the Service has fee title or easement interest. The Service also provides resource management advice for military and tribal lands. This ecosystem supports over 121 species of neotropical and other migratory birds and provides a key component of the Prairie Pothole Region producing 20 percent of the continental population of waterfowl. The ecosystem supports several species of candidate and federally-listed threatened and endangered species including plants, mammals, birds, and mussels. No group of animals in the Midwest is in such grave danger of extinction as mussels. The four major watersheds of the ecosystem (Mississippi, Minnesota, St. Croix, and Red Rivers) are important habitats for these mussels and several species of interjurisdictional fishes such as the paddlefish and lake sturgeon.

Mississippi Headwaters/Tallgrass Prairie Ecosystem Team

The work of the Service in this ecosystem meets a wide range of needs within a varied landscape. Work is conducted by 23 field offices within the ecosystem. Offices include 10 national wildlife refuges, seven wetland management district offices, two realty offices, two private lands offices, an Ecological Services office and one law enforcement office. Two meetings were held in Fiscal Year 2000 for team members and invited guests of the Mississippi Headwaters/Tallgrass Prairie ecosystem. A meeting was held in February 2000 in Minneapolis, Minnesota, and a meeting was held in Spirit Lake, Iowa, in September 2000.

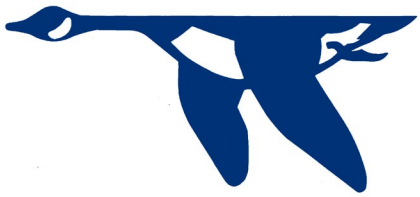
--USFWS Photo by Dan Sobieck

A herd of bison, on loan from a private donor, roams the prairie at Big Stone NWR in western Minnesota.

Summary of Fiscal Year 2000 Accomplishments

Activities in Fiscal Year 2000 included a variety of projects and partnership activities designed to improve the landscape. Highlights include work completed within the Northern Tallgrass Prairie NWR, Minnesota River Focus Area, the Red River Wetland Project, Local Ecotype Seed Utilization Project, and Northwestern Minnesota Wetland Restoration Effort. In addition, the Team initiated efforts to update their 1997 action plan (Landscape Plan) and foster a partnering relationship with the Red Lake Band of the Chippewa.

Northern Tallgrass Prairie NWR



The Northern Tallgrass Prairie NWR purchased its first tract this year, after receiving $500,000 to begin acquisition efforts. By the end of the fiscal year, nearly the full amount had been spent. Acquisitions were focused on creating complexes of habitats and demonstration projects to generate additional interest throughout the project area. Preservation of tallgrass prairie habitat on private lands also received additional effort, with the funding of private landowner work through the Endangered Species Landowner Incentive Program. This, coupled with another 4,000 acres of grassland restoration through the Partners for Fish and Wildlife program, has improved the prairie landscape to well over 50,000 acres of preserved and restored grasslands accomplished by the Service since the early 1990s.

Red River Watershed

Work continued within the watershed of the Red River of the North to address habitat restoration and attendant flood and natural resource issues. Service representatives continued to participate on the board for the Red River Mediation Agreement. A large scale wetland restoration effort was initiated in Northwestern Minnesota, greatly enhancing flood storage capacity and providing wetland habitat for Service trust species. Over 800 wetlands were restored within the watershed for a total of 2,700 acres of habitat. This effort involved many offices within the ecosystem, as well as volunteers from throughout the Region, and will continue in Fiscal Year 2001.

Ecotype Seed Project

Progress was made on the Local Ecotype Seed project, with one of five implementation plans for local ecozones completed. Additional plans are being developed by subteam members. Approximately 25 percent of prairie plantings completed on Service lands and for Service projects are now using local ecotype seed. The Team initiated the Local Ecotype Seed initiative in Fiscal Year 1999 and has established a five-year goal to have all plantings on Service lands and private land restorations be completed using local ecotype seed. This is an ambitious and worthwhile goal based on sound biology.

Minnesota River

Restoration and protection of important habitats in the Minnesota River watershed was a focused effort this year. Lance Kuester, Minnesota State Private Lands Coordinator, serves as the Focus Area Leader for the Minnesota River watershed focus area, as part of the high profile Midwest Natural Resources Group. Restoration efforts by personnel within the watershed included numerous wetland restoration and grassland restoration efforts both on- and off-Service land. Key acquisitions within the Minnesota Valley National Wildlife Refuge have

Summary of Fiscal Year 2000 Accomplishments

been completed this year and a large mitigation trust fund was set up for important Minnesota Valley acquisition work to compensate for airport impacts to areas along the River. These dollars will be spent to acquire important habitat along the Minnesota River that will be managed as part of Minnesota Valley National Wildlife Refuge.

Raising the profile of the Team continued to be a priority in Fiscal Year 2000. Accomplishments are among the finest in the Region and are regularly entered into the Region's Accomplishment Reporting System.

Team Membership

Mr. Steve Delehanty, district manager of the Morris Wetland Management District, became the new team leader of the Mississippi Headwaters/Tallgrass Prairie ecosystem in September 2000. The Team's executive committee represents Service interests in all areas, from refuge and private lands work to fisheries to ecological services. The executive committee for Fiscal Year 2000 included Barry Christenson, Team Leader (Litchfield WMD), Russ Peterson (TCFO), Steve Delehanty (Morris WMD), Charlie Blair (Sherburne NWR), Jim Munson (Iowa PLO), Scott Yess (LaCrosse FRO), and Lisa Mandell, ecosystem Biologist (EOD January 2000). Several executive committee members stepped down, following their two-year terms, and new members were elected at the September 2000 Team meeting. For Fiscal Year 2001, the Team will include all project leaders in the MH/TGP ecosystem Team, with Steve Delehanty as Leader and an executive committee that includes: Barry Christenson, Scott Yess, Russ Peterson, Lisa Mandell, and new members Maggie Anderson (Agassiz NWR) and Lance Kuester (Minnesota PLO). Subteams have formed around several important issues which will receive focus in Fiscal Year 2001: 1) Local Ecotype Seed, 2) Native Seed Growers, 3) Outreach, and 4) Landscape Plan.

Fiscal Year 2001 Goals

Lift the Conservation of Migratory Birds to a Higher Level

• Participate fully in the North American Bird Conservation Initiative through partnering with other agencies, non-governmental organizations, and conservation organizations to increase available habitats and achieve bird conservation goals set forth in NAWMP, PIF, and Shorebird Conservation Plans.

• The Team will continue partner efforts with the Red River Basin Flood Damage Reduction Work Group to increase cooperative projects that enhance natural resources in the watershed. Assistance and support will be provided in the development of a NAWCA grant by the Audubon Society and interested partners.

• Species listed in the Region 3 Resource Conservation Priorities document will receive special attention in planning for the restoration of 1,500 acres of wetland and 2,000 acres of native prairie throughout the ecosystem.

Strengthen the Ecosystem Approach to Fish and Wildlife Conservation

• Participate in the implementation of natural resource goals identified in the Red River Basin Flood Damage Reduction Work Group Mediation Agreement. Specifically, the Team will work to increase natural resource enhancement efforts through this partnership.

• Complete five-year implementation strategies for four of the five ecozones identified in the Interim Guidelines for prairie restoration projects, entitled, "Iowa and Minnesota Local Ecotype Development for Prairie Lands". (Note: The Des Moines Lobe ecozone subteam has already completed their five-year strategy.)

• Initiate discussion with Federal, State and Tribal partners for at least one watershed improvement project within the St. Croix and Minnesota River (e.g. Bevins Creek) Watersheds. These areas represent two of the thirteen focus areas identified by the Midwest Natural Resources Committee.

• Priority will be placed on the implementation of a large-scale wetland restoration effort in Northwestern Minnesota. This effort was initiated in 2000 and has the potential to restore 3,000 additional wetland basins in 2001 and 2002. Individuals from throughout the ecosystem (and the Region) will be made available to accomplish this large-scale effort.

• The collective efforts of the ecosystem team will be strengthened by the development of an up-to-date landscape plan to direct resources to the Service's highest priority resource issues, in coordination with our partners.

Lead Efforts to Prevent the Introduction and Spread of Invasive Species

• Field stations will continue to control and monitor invasive species. Zebra mussels, purple loosestrife, spotted knapweed, and leafy spurge are species of special concern in the ecosystem.

Set the Course for the Future of the Refuge System

• As recommended in WH 17 of the Fulfilling the Promise document, team members will support the development of a nationally coordinated approach for prioritizing lands and waters to support strategic growth of the refuge system. Specifically, opportunities for establishing parcels for the Northern Tallgrass Prairie NWR will be pursued in Fiscal Year 2001.

Upper Mississippi River-Tallgrass Prairie Ecosystem

Fiscal Year 2000 Annual Report
Region 3

--Army Corps of Engineers Photo

Aerial view of Polander Lake on the Upper Mississippi River National Wildlife Refuge near Winona, Minn.

Ecosystem Description

Contained entirely within Region 3, the Upper Mississippi River/Tallgrass Prairie Ecosystem encompasses the eastern two-thirds of Iowa, most of Illinois, the eastern third of Missouri, the southeastern corner of Minnesota, and all but the most northern tip of Wisconsin. The Upper Mississippi River and its tributaries provide the largest remaining contiguous area of fish and wildlife habitat in the central United States. The system covers 186,000 square miles and is characterized by six unique features: the Mississippi River and tributaries, stream and riparian woodland corridors, prairie wetlands, tallgrass prairie, oak and savanna forestlands, and the "Driftless Area."

The Mississippi River and its 15 tributaries in the ecosystem provide critical sources of water for fish and other aquatic life, including large-river fish such as the paddlefish and pallid sturgeon. Riparian corridors offer travel lanes, and winter, nesting, and roosting cover for migratory birds and listed species such as the bald eagle and Indiana bat. Prairie wetlands harbor species dependent on small seasonal wetlands; wildlife associated with native grasslands depend on the remnants — only one-tenth remains — of the once vast tallgrass prairie. Oak Savannas and forest land, which were once prominent in the upper Midwest, are now among the rarest of natural communities. Still, those that remain support a high diversity of plants and animals. The Driftless Area, so-named because it escaped the effects of the last glacial drift, covers parts of Minnesota, Iowa, Wisconsin, and Illinois. Characterized by deeply cut valleys and dissected uplands, the Driftless Area supports a large variety of unusual plant species as well as the threatened monkshood and the endangered Iowa Pleistocene snail.

As one might expect, some of the major challenges facing fish and wildlife managers in the Upper Mississippi River/Tallgrass Prairie Ecosystem are associated with activities along the mainstem of the Mississippi River as well as its tributaries. Maintenance of the navigation channel, construction of flood control levees, and operation of the locks and dams that facilitate river traffic have combined to change the river basin's capacity to support fish and wildlife. Managers must deal with erosion and

Ecosystem Description

sedimentation problems that fill in important habitats in bottomlands and backwaters. Industrial and urban runoff, sewage effluent, and agricultural runoff generate point and non-point source pollution. Clearing of wooded riparian corridors and conversion of oak savanna, wetland, and prairie habitats to agricultural uses also pose challenges. The area is also a magnet for outdoor recreationists – millions of visitors fish, hunt, boat, birdwatch, and otherwise enjoy the region's natural resources each year.

Upper Mississippi River-Tallgrass Prairie Ecosystem Team

The Upper Mississippi River/ Tallgrass Prairie Ecosystem team includes more than a dozen field stations, with representatives from Refuges, Ecological Services, Fisheries, and Law Enforcement programs. Team members work in subgroups which focus on specific aspects of the ecosystem, such as the Mississippi River Levee subgroup. The team works regularly with a variety of partners, including the U.S. Geological Survey and the U.S. Army Corps of Engineers; these partners sometimes participate in or attend team meetings.

The Upper Mississippi River/Tallgrass Prairie Ecosystem Team has prioritized its challenges and developed a set of goals to address the needs of its six designated focus areas. Those goals include protecting and restoring trust species and their habitats; restoration of the natural processes of the ecosystem — including hydrologic functions of the rivers and sediment transport – to maintain species and habitat diversity; promoting awareness of the ecosystem among the region's populace, emphasizing the options for sustainable land use management; identifying water quality problems that affect biodiversity within the ecosystem; and finding ways to reduce potential conflicts among the many users of the ecosystem's fish, wildlife, and plant resources.

--USFWS Photo

Private landowners in Wisconsin are supporting habitat restorations for the federally- listed Karner blue butterfly.

Summary of Fiscal Year 2000 Accomplishments

The following accomplishments are compiled from available information and relate specifically to items listed in the Fiscal Year 2000 Annual Work Plan for the Upper Mississippi River Tallgrass Prairie Ecosystem Team.

Migratory Birds

The ecosystem team prepared for an experimental water level reduction plan for Navigation Pool 8 on the Upper Mississippi River. This activity, being directed by the Water Level Management Task Force, was for purposes of determining biological benefits of a pool drawdown. Due to low precipitation in the watershed of the Upper Mississippi River during winter and spring, the U.S. Army Corps of Engineers was unable to complete the experimental plan without adversely impacting other commercial and recreational uses. The team's Annual Work Plan for Fiscal Year 2001 calls for a similar attempt at Pool 8.

Habitat Restoration

During Fiscal Year 2000 there was active habitat restoration projects on Service-owned and privately owned lands throughout the ecosystem. Projects resulted in bottomland hardwood and emergent or open-water wetland restoration. Enhancement and restoration of native tallgrass prairie was also prevalent in the ecosystem. Cumulative affects for these individual projects are expected to benefit Federal trust resources including lands in the National Wildlife Refuge System as well as species listed in the Region 3 Resource Conservation Priorities Plan.

Whooping Crane Reintroduction

The first phase of a reintroduction effort to establish an eastern population of the endangered whooping crane was initiated at Necedah NWR. Sandhill cranes were successfully reared at the refuge and trained to follow an ultralight aircraft. In October the birds began their southward migration to Florida with assistance in navigation by an ultralight surrogate parent. If successful, this will be the procedure followed to raise and release and introduced population of whooping cranes.

Karner Blue Butterfly

A multi-station effort to restore habitat for the endangered Karner Blue Butterfly in a 20-county area of central Wisconsin continues to be a highly successful and popular program with private landowners. In Fiscal Year 2000, private landowners participated in the restoration and enhancement of oak savannah habitat. Through proper management of these barren habitats the native lupine becomes a part of the overall plant community and attractive to the Karner Blue butterfly.

Higgin's Eye Pearlymussel

As a representative of the Upper Mississippi River Tallgrass Prairie Ecosystem team, a briefing on the Higgin's Eye Mussel was conducted by Gary Wege with the Regional Management Team. The briefing informed the Regional Management Team of latest efforts by the Service and its partners to implement a plan for conserving the species in the mainstem Mississippi River. Several stations, including hatcheries, ecological services and refuges, are engaged in Higgin's Eye recovery.

Summary of Fiscal Year 2000 Accomplishments

Crow Creek Watershed

Through efforts of the Midwest Natural Resources Group, the Crow Creek watershed, a tributary of the Illinois River, was identified as a priority project. The Crow Creek watershed has several land and water resource problems that require attention. Through collective efforts of such federal agencies as the Corps of Engineers, Natural Resources Conservation Service, Federal Highway Administration, Environmental Protection Agency, U.S. Geological Survey and the Service, along with state and local organizations, watershed restoration and improvement efforts have been initiated. Through similar efforts along the mainstem Mississippi River in Vernon County, Wisconsin, members of the ecosystem team have collaborated with the local watershed district to construct a variety of stream improvement and terrestrial habitat restoration measures.

At the winter meeting of the Upper Mississippi River Tallgrass Prairie Ecosystem team a total of seven resource priority groups were formed, including one for unique and special resource areas. The Driftless Area has been included in the priority group and a subgroup leader has initiated a plan to elevate the importance of this unique ecosystem.

Invasive Species

-Photo by Center for Great lakes and Aquatic Sciences

The round goby has spread to four of the Great Lakes, and concerns persist that it will invade the Upper Mississippi River system from Lake Michigan via the Illinois Waterway.

The electric barrier planned for a tributary of the Illinois River near Chicago was delayed by the Corps of Engineers for implementation. The Round Goby has now migrated past the location of the planned electric barrier and there is some uncertainty as to effectiveness of the planned project. However, it is the understanding of team members that the project will be installed in Fiscal Year 2001. Success of the electric barrier will be monitored by team members.

Selected refuges within the Upper Mississippi River Tallgrass Prairie Ecosystem continue to pursue control of invasive populations of purple loosestrife. Release and monitoring of Galerucella beetles has become an increasingly used land management tool in wetland and moist soil management regimes. Some stations are considering collecting beetles from field sites for inoculation into infested areas thus eliminating the need for an insectory.

Outreach

Roughly $30,000 were designated by the Geographic Assistant Regional Director in Fiscal Year 2000 for use as education and outreach within the Upper Mississippi River Tallgrass Prairie Ecosystem. Many of these projects which have been completed address the impacts of invasive species on native fish and wildlife resources.

Fiscal Year 2001 Goals

The following activities have been established for team members of the Upper Mississippi River/Tallgrass Prairie Ecosystem for fiscal year 2001.

Lift Conservation of Migratory Birds to a Higher Level

- Participate in the rescheduled Navigation Pool 8 experimental water level reduction. Evaluate trust resource benefits of this Water Level Management Task Force directed activity.

- Species listed in the Region 3 Resource Conservation Priorities Plan will receive special attention in planning for the restoration of 200 acres of forest, 700 acres of wetland and 1,000 acres of grassland throughout the ecosystem.

- Continue to support Whooping Crane reintroduction efforts.

Strengthen the Ecosystem Approach to Fish and Wildlife Conservation

- Restore and protect oak savannah and barrens habitat on lands owned by 15 landowners in Wisconsin to benefit the endangered Karner Blue Butterfly. Assist with implementation of goals in the Statewide Habitat Conservation Plan for the Karner Blue Butterfly.

- Maintain an open dialogue with The Nature Conservancy as plans are developed to reconnect the Illinois River and its floodplain in vicinity of Emiquon NWR.

- Promote the Service's role and associated funding needs for Environmental Management Program (EMP) implementation.

Lead Efforts to Prevent the Introduction and Spread of Invasive Species

- Work cooperatively to conduct an assessment of the electric barrier scheduled to be placed in the Illinois River waterway as a deterrent to the downstream spread of the round goby.

- In cooperation with the Army Corps of Engineers and state partners, develop and implement a plan to relocate Higgin's eye pearlymussel (Lampsillis higginsii) to mitigate the deleterious effects of the zebra mussel.

Set the Course for the Future of the Refuge System

- As recommended in WH 17 of the *Fulfilling the Promises* document, team members will continue to pursue and support the development of a nationally coordinated approach for prioritizing lands and waters to support strategic growth of the refuge system.

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Ohio River Basin Ecosystem

Fiscal Year 2000 Annual Report
Region 3

--USFWS Photo by Scott Flaherty

Little Otter Creek winds its way through Big Oaks National Wildlife Refuge in southern Indiana. The new Refuge comprises 50,000 acres of the former Jefferson Proving Ground, a U.S. Army ordnance testing site.

Ecosystem Description

The Ohio River Basin drains a total area of approximately 141,000 square miles (excluding the Tennessee and Cumberland river watersheds as well as the New River drainage in the western portions of Virginia and North Carolina) and includes portions of Illinois, Indiana, Kentucky, Maryland, New York, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. The Ohio, the ecosystem's primary river, is formed by the confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania. Major tributaries flowing into the Ohio, from upstream to downstream, include the Muskingum, Kanawha, Guyandotte, Big Sandy, Scioto, Licking, Great Miami, Kentucky, Green, and Wabash rivers. The Ohio flows 981 miles in a southwesterly direction, joining the Mississippi River at Cairo, Illinois.

The Ohio Basin can be divided into three parts, corresponding to the Basin's three major physiographic provinces. The Appalachian Plateau in the eastern portion is characterized by rugged topography resulting largely from the erosion of flat-lying rocks. The permeable sand and gravel deposits in the valleys of the drainage system provide moderate groundwater supplies. The area has extensive forest cover, generally poor quality soils, narrow valleys, steep stream gradients, flash floods during the rainy season, and low stream flows during dry seasons.

The Central Lowlands occupies the northwestern third of the Basin and is the result of several glaciations. Glaciers covered most of the area in recent geologic history, and left soil deposits which are now some of the richest agricultural lands in the Basin. The topography is flat to slightly rolling and the drainage pattern has been significantly altered from its original, pre-glaciation condition. In some instances, buried pre-glacial streams provide extensive groundwater resources.

The Interior Low Plateau in the southwestern third of the Basin is dominated by limestone rock which covers most of this region. This has resulted in the rolling terrain forming the Lexington Plains and Bluegrass regions where farming dominates. Areas of local rugged relief are forested, their soils thin. Groundwater has the typical variability of limestone areas.

Three other physiographic provinces are represented over a small areal extent in the Basin. The Valley and Ridge and the Blue Ridge provinces occur in the southeastern-most parts of the Basin, and the Gulf Coastal Plain province occupies the lowermost part of the Basin where the Ohio joins the Mississippi River.

Biological Resources

The Ohio River basin bisects three regions of the Deciduous Forest Formation of eastern North America: the Mixed Mesophytic Forest Region (upper basin, roughly upstream of Portsmouth, Ohio), the Western Mesophytic Forest Region (lower basin from Portsmouth, Ohio, to Paducah, Kentucky), and the Mississippi Alluvial Plain Section of the Southeastern Evergreen Forest Region (lowermost portion of the basin from Paducah, Kentucky, to Cairo, Illinois).

The mixed mesophytic and western mesophytic forests have been classified broadly as a tulip poplar-oak region. The dense, mixed mesophytic forest contains a fair abundance of two indicator species, white basswood and yellow buckeye, in a total group of 15 to 20 dominant species. The western mesophytic forest is marked by a transition from extensive mixed mesophytic communities in the east to extensive oak and oak-hickory communities in the west. The western mesophytic forest is less dense, has few dominants, and usually lacks the two indicator species of the mixed mesophytic forest.

In the lower, downstream portion of the ecosystem, near Paducah, Kentucky, the Ohio River enters the northernmost extension of the Mississippi Alluvial Plain. In this alluvial region, three subdivisions of "bottomland forest" (i.e., palustrine forested wetland) are recognized: swamp forest, hardwood bottoms, and ridge bottoms. The swamp forest, consisting principally of cypress and tupelo gum, occupies land on which water stands throughout the year except during periods of extreme drought. The hardwood bottoms contain a large number of species, frequently flood, and generally remain covered with water through the late winter and spring. Ridge bottoms contain some of the tree species of hardwood bottoms, but have a larger number of oaks and hickories; occurring at slightly higher elevations than hardwood bottoms, these areas are covered by water only during floods.

The rich flora and fauna of the ecosystem reflect its diverse physiography and unique geologic past. Numerous Service trust resources occur in the ecosystem, including many federally listed endangered/ threatened plants, mussels, fishes, birds and mammals; waterfowl and other migratory water birds; and neotropical migratory land birds.

The unusually rich and diverse fauna found in the ecosystem is the product of a multitude of biotic and abiotic factors which have evolved over time. Throughout geologic time, changes in such factors as topography, climate, and geomorphology have formed, modified, and eliminated habitats and consequently have had a profound effect upon the distribution of the faunal assemblages in the ecosystem. Due to the ecosystem's central geographical location in the eastern United States, some species with northern affinities and others with southern affinities occur in the ecosystem in addition to those common to the central region of the country.

Stresses

Much of the region's economic activity—agriculture, lumbering, mining, and recreation—is based on the watershed's natural resources. Sustaining most of these activities requires maintenance of a healthy ecosystem. Stress from human activities has adversely affected the ecological integrity of the ORVE, and there are indications that this stress is increasing.

Environmental alteration and degradation are continuing challenges to the maintenance of a productive and healthy ORVE. Resources of the area are threatened by land conversion, poor land-use practices, direct and indirect physical alteration of the area's rivers and streams, acid mine drainage, destruction of wetland habitats, and both point- and nonpoint-source discharges of pollutants. Herbicides, insecticides, nutrients, and sediment are significant components of the agricultural runoff that adversely affect aquatic systems throughout the area. Acid precipitation and other airborne pollutants are having dramatic effects on aquatic and terrestrial communities, particularly at high elevations. Natural resources are further threatened by an expanding human population and its increased demand for renewable and nonrenewable resources. Contamination of both aquatic and terrestrial systems through acid mine drainage and the accidental release of toxic chemicals is a continuing threat. Operation and maintenance of the inland navigation system and the recent invasion of the non-indigenous zebra mussel are having significant adverse impacts on native flora and fauna of the area's rivers and streams. Other non-indigenous species are threatening native components of aquatic and terrestrial systems throughout the area. The expansion of urban and suburban areas within the ecosystem and the concurrent loss of forest, wetlands, agricultural lands, and other types of open space associated with this expansion have reduced the quantity and quality of natural habitats available to fish and wildlife.

Given the abundance of ecosystem-altering influences past and present, a coordinated landscape-scale effort is necessary to reverse and prevent further declines in biological resources. A healthy ecosystem will provide much more diverse flora and fauna. It will provide clean air and water; healthy soil; sustainable harvests from forests and fields; and abundant outdoor recreational opportunities for this and future generations. Through the efforts of the Service and other partners, the ORVE can become a healthier ecosystem and a model of how socioeconomic objectives can be accomplished without sacrificing the environment.

The Ohio River Valley Ecosystem Team (ORVET)

-USFWS Photo by Teresa Vanosdol-Lewis

Biologist Jason Lewis measures nest site characteristics for Henslow 's sparrows at Big Oaks NWR in southern Indiana.

The Ohio River Valley Ecosystem (ORVE) includes portions of 10 states and straddles three Service Regions (Region 5, Northeast; Region 4, Southeast; and Region 3, Great Lakes-Big Rivers). The ORVE Team is composed of Service personnel from each Region, and is charged with the development and implementation of a strategic plan for conserving Service trust resources in the ecosystem.

The Team's mission is to work cooperatively with other government agencies and the private sector for the conservation of the ORVE's native animal and plant diversity through perpetuation of a dynamic, healthy ecosystem. The Team's broad goals for the ORVE are:

• Protect, restore and enhance habitats and essential processes necessary to maintain healthy native animal and plant populations.

• Protect, restore and enhance diversity of native flora and fauna.

• Promote and support compatible and sustainable uses of the ecosystem's resources and utilize existing laws, regulations, and influence to control incompatible and unsustainable uses of these resources.

• Develop public awareness and support for ecosystem resource issues.

In support of these goals, the Team has established seven Resource Priorities and a Public Use priority for the Ecosystem:

• Priority 1: In cooperation with partners, reverse the decline of native aquatic mollusks within the ORVE with emphasis on endangered, threatened and candidate species and species of concern.

• Priority 2: In cooperation with partners, reverse the decline and achieve stable, viable populations of migratory landbirds and other bird species of concern.

• Priority 3 : In cooperation with partners, reverse the decline of native fishes with emphasis on interjurisdictional listed and candidate species and species of concern.

• Priority 4: In cooperation with partners, protect and restore karst/cave habitat supporting listed and candidate species and species of concern.

• Priority 5: In cooperation with partners, protect and restore wetland, riverine and riparian habitat in the Ohio River watershed for the protection and enhancement of migratory waterbirds and other wetland dependant species of concern.

• Priority 6: In cooperation with partners, reduce the decline and promote the recovery of rare resources identified as listed/proposed

threatened and endangered species, candidate species and species of concern[1]not otherwise addressed in Resource Priorities 1- 5 (e.g. plants, reptiles, amphibians, etc.).

• Priority 7: In cooperation with partners, achieve the necessary level of protection for those high priority areas within the ORVE that would help meet the goals of the ORVE Team. In particular, emphasis will be placed on the objectives of Resource Priorities #'s 1 through 6 and Public Use Priority #1.

• Public Use Priority 1: In cooperation with partners, promote and support sustainable fish and wildlife-oriented recreational uses while maintaining the long-term health of the ecosystem and the Service's trust resources.

Summary of Fiscal Year 2000 Accomplishments

Ecosystem Focus Areas: Team sub-groups are working to identify high priority geographic areas within the ORVE that are important in meeting the sub-group goals and objectives. These "Focus Areas" were presented at the June Team meeting and further refined at the September meeting. It is expected that identification of these Focus Areas will help set future team priorities.

Freshwater Molluscs

Cooperative Zebra Mussel Monitoring Network

Since 1995, the Service has been working side by side with the states of West Virginia, Ohio, Kentucky, Indiana and Illinois, along with the US EPA, Corps of Engineers, and volunteers, tracking the status of zebra mussels and their effects on our native mussel fauna. Ten federally listed species occur in the mainstem Ohio River, and the monitoring network has documented serious declines in native mussels in the middle and lower river. In Fiscal Year 2000, the sixth annual cooperative zebra mussel monitoring was conducted.

Ohio River Mussel Poster

Along with the states of Kentucky, Ohio, Indiana, Illinois, and West Virginia, the TVA, the Freshwater Mollusk Conservation Society, and private Mussel Mitigation Trust, the Service helped draft and produce a full color poster highlighting the conservation needs of the Ohio River's native mussel fauna. Fifteen thousand copies of the poster were distributed throughout the ORVE.

Endangered Species Rescue

Recovery efforts for endangered species along the 981-mile-long Ohio River is a daunting task. The U. S. Fish and Wildlife Service (Service), along with the States of Illinois, Indiana, Ohio, Kentucky, West Virginia, and Pennsylvania, and other partners are developing a strategy for relocating endangered mussels at risk in the mainstem Ohio River to safe havens in selected mainstem areas or in tributaries with minimal zebra mussel infestation. Projects funded in Fiscal Year 2000 toward that goal include:

-USFWS Photo by Scott Flaherty

The threeridge mussel, (Amblima plicata) *is found throughout the midwest. Settlements resulting from prosecution of freshwater mussel poachers are helping fund conservation programs for mussels in the Ohio River Valley ecosystem.*

• A grant agreement with Dr. Jim Sickel to facilitate the protection of endangered unionids from zebra mussels and other habitat perturbations and re-establish breeding populations in the Ohio River basin by relocating endangered and non-endangered unionid species from the Ohio River into a refuge in the Kentucky Dam tailwater. Funding ($21,500) for this study was provided through Region 5 flex funds. The grant agreement was finalized in September 2000.

• A cooperative agreement with Dr. Tim King at the U. S. Geological Survey - Biological Resources Division (USGS-BRD) Leetown facility to develop microsatellite DNA markers for *Lampsilis abrupta (*Pink mucket.*)* Phase I (marker development) was funded through Region 4 flex funding ($15,000). The cooperative agreement was finalized in August. Phase II (population survey and broodstock screening) requires an additional $15,000 and has not yet been funded. This project is a partnership between USGS, Service, Tennessee Wildlife Resources Agency, and Alabama Department of Conservation and Natural Resources. The salaries of the three Principal Investigators and the state-

Summary of Fiscal Year 2000 Accomplishments

of-the-art equipment available in the BRD components genetic laboratory are considered matching funds.

• Propagation of juvenile mussels: As part of its focus on the propagation of freshwater mussels, the ORVE Team funded, through its kitty, a study of optimum feeding conditions for maintaining captive unionids: a study of an anodontine, an amblemine, and a lampsiline unionid. This research was possible through the cooperative efforts of the Service, the American Zoo and Aquarium Association (AZA), the Patrick Center for Environmental Research at the Philadelphia Academy of Natural Sciences, and Virginia Tech. Thus far, Dr. Kreeger at the Academy of Natural Sciences was awarded $20,000 from the AZA to pay for labor and supplies. The study is underway.

• Wild Turkey Spill: A recent fire at the Wild Turkey distillery resulted in a spill of more than 200,000 gallons of whiskey into the Kentucky River. This spill resulted in a 5 to 7 mile-long slug of anoxic water that traveled slowly down the river from Frankfort, Kentucky to the river's confluence with the Ohio River. The ORVE has a dive team from Ohio River Islands NWR that will work with the State of Kentucky to survey the extent of impacts to freshwater mussels in the Kentucky River.

Migratory Birds

GAP Metaproject

The ORVE Migratory Bird Subgroup, which includes a variety of federal and state agency and conservation group partners, initiated the ORVE Migratory Bird Resource Priority GAP Metaproject to identify areas of importance to species of migratory birds. The target bird species are mainly songbirds that winter in South America or Latin America and breed or inhabit the Ohio River Watershed during the spring and summer. The GAP metaproject will identify areas in the ORVE that are of particular importance to these species of birds and present the information in an ArcView GIS database.

Reclaimed Strip Mine Grasslands

The second year of a grassland/savanna bird productivity monitoring in strip mines, approximately 500 nests of 28 species were monitored. Good sample sizes were attained for red-winged blackbirds, eastern meadowlarks, field sparrows, grasshopper sparrows, Henslow's sparrows, mourning doves, and brown thrashers. Twenty Henslow's sparrow nests were found, and a thermal imager was used to enhance nest location for ground nesters (e.g., Henslow's sparrows and grasshopper sparrows. There was very little cowbird parasitism for the grassland species monitored. Most nest losses were due to predation and weather. Overall, nest success was comparable to that found in other studies of grassland and savanna birds in the Midwest, and the investigators tentatively concluded that strip mine-using grassland birds are doing at least as well as grassland birds in any non-mine grassland habitat. Data are in the process of being analyzed, and a final report will be prepared.

--USFWS Photo

Not quite a week old, this young Henslow's sparrow was banded by Service biologists at Big Oaks NWR.

Summary of Fiscal Year 2000 Accomplishments

Grassland Bird Studies

Several other grassland bird studies were coordinated/reviewed by ORVE team members. Two separate Henslow's sparrow studies were initiated in Kentucky, and monitoring work continued at Big Oaks NWR, formerly Jefferson Proving Ground. The study at Big Oaks NWR has monitored 77 Henslow's sparrow nests during the last three years. This study has indicated that Henslow's sparrows can successfully nest in grasslands treated with prescribed fire during the treatment year, and nesting densities are highest the season following the prescribed fire treatment. Also, some data at Big Oaks NWR indicate that mowing could decrease nest densities and be a less desirable treatment for nesting Henslow's sparrows.

Trust Fishes

Paddlefish

The ORVE team funded purchase of paddlefish tagging equipment to expand the ability of Kentucky fishery biologists to increase tagging efforts in sampling gaps identified in the MICRA Mississippi River Basin Paddlefish Stock Assessment. The project was funded by the ORVE Kitty.

Imperiled Species

Lists were prepared of fish species that are endemic, endangered, imperiled, and/or species of concern. These lists are currently under review by the subgroup.

Crystal Darter

A population genetics study of crystal darter in the Elk River of West Virginia was completed in Fiscal Year 2000. The study supports the conclusion that this population is unique and warrants protection under Endangered Species Act. As a result, the listing process on this species will be initiated.

Olmstead Lock and Dam

Potential stakeholders have been identified in the effort to develop a baseline fisheries monitoring plan to measure the effects of Olmstead Lock and Dam on the lower Ohio River. A meeting is planned for late fall with the Corps of Engineers.

Cave/Karst Habitat

GIS Data Layer

Data from all of the states regarding the presence of limestone have been submitted to the team's GIS person, Kurt Snider. From this data, Kurt has developed a cave/karst GIS data layer for the ORVE. A map can be readily generated from this data layer. Presently the information is most important in identifying focus areas for the ecosystem.

Web Page

The subgroup has provided the information necessary to develop a Cave/Karst page on the ORVE web site.

Gating Waterfall Cave

At the recommendation of the Cave/Karst Subgroup, the ORVE Team funded Mr. Roy Powers to design and direct construction of an angle iron gate on Waterfall Cave located on the Daniel Boone National Forest in Rockcastle County, Kentucky. Waterfall Cave is a Priority II hibernaculum for the endangered Indiana bat, where the Indiana bat (Myotis sodalis) population had recently fallen from 1,200 to 600. The reason for the decline in the population was human disturbance. Part-

Summary of Fiscal Year 2000 Accomplishments

ners in the project included the U.S. Forest Service, the American Cave Conservation Association, the Kentucky Department of Natural Resources, and the Service's Canaan Valley NWR and the Asheville, NC Field Office.

Virginia Big-Eared Bats

Although not located in or directly funded by the ORVE, numerous personnel from the ORVE were involved in the construction of angle iron gates at the entrances of Schoolhouse, Hoffman School, and Minor Rexrode Caves in Pendleton County, West Virginia. This project was lead by the Service's West Virginia Field Office, in partnership the West Virginia Division of Natural Resources' Non-Game Wildlife and Natural Heritage Program. The gates will permanently protect three large summer and winter colonies of the endangered Virginia big-eared bat, Corynorhinus townsendii virginianus and one significant hibernaculum of the endangered Indiana bat, from human disturbance. Human disturbance has been identified a major cause of decline in these species. The gates will protect 20 percent of the world's Virginia big-eared bat's summer (maternity) population. Other personnel who were key in the completion of these projects came from the Canaan Valley NWR, Patuxent NWR, Ohio River Islands NWR, Pennslyvania Field Office, American Cave Conservation Association, The Nature Conservancy, U.S. Forest Service, and National Speleological Society Chapters (Grottos) from Ohio, Virginia, West Virginia, Pennsylvania, and Maryland.

-USFWS Photo by Teresa Vanosdol-Lewis

A miniature radio transmitter is afixed to the back of a lactating female Indiana bat.

Green River Drainage

A proposal was submitted for funding on March 18, 1996, to the Cave/Karst Subgroup of the ORVE for an environmental assessment of the cave/karst habitat in the Green River drainage. The study objectives were to identify cave resources and contaminant impacts to those resources, to integrate the data into GIS coverages, and to determine priority areas of concern. The results of this study will provide important information for the development of cave habitat protection/restoration plans to be implemented through partnerships with resource management agencies and groups within the ecosystem. The ORVET provided $5,200 for the study in 1997. Dr. Chris Groves and graduate students at Western Kentucky University conducted the study. A final report and electronic copy of the GIS data have been completed, but have not been submitted to the Service as yet.

Twin/Donaldson Cave Project

The Twin/Donaldson cave project (water quality and watershed project for the protection of existing cavefish population), was funded by the ORVE in Fiscal Year 1999 with $5,000. This money was added to an existing and ongoing project known as: Potential Nonpoint-source Contamination of the Spring Mill Lake Drainage Basin sponsored by Indiana Department of Environmental Management. The technical reviews of the final report on the water quality of Donaldson/Bronson/Twin Cave System have been completed. After the suggested modifications have been addressed, the report needs to be reviewed by the Indiana Geological Survey editor and director before it can be released. The report will be released in the near future.

Summary of Fiscal Year 2000 Accomplishments

Cave Management Symposium

Robert Currie, Asheville Field Office, gave a presentation on the protection needs of federally listed cave dependant species at the 1999 Cave Management Symposium in Chattanooga, Tenn. The National Cave Management Symposia are held every two years and are sponsored and coordinated by the Service, the National Park Service, the Bureau of Land Management, the US Forest Service, the National Speleological Society, the American Cave Conservation Society, Bat Conservation International, and others. These meetings were initiated in the mid-70's. They provide an opportunity for Federal, State and private cave managers and owners to share ideas and information on the protection of cave and karst resources. The published proceedings of the Symposia are an excellent source of information on the subject.

Kentucky Transportation Cabinet

Robert Currie, Asheville Field Office, gave a presentation on the Endangered Species Act and the protection of cave dependent species at a meeting of the Kentucky Transportation Cabinet and their contractors and consultants. The meeting was held in Bowling Green, Kentucky, Partners in the session on the protection of cave species and the habitats that support them included the Cave Research Foundation, Kentucky Geological Survey, National Speleological Society, American Cave Conservation Association, and the University of Louisville. In addition to endangered species, topics discussed at the meeting included the hydrology, geology, paleontology and archeology of cave and karst systems. Information provided to the participants will enable them to more effectively address and protect cave and karst habitats during the design and construction of highway projects in Kentucky.

Wetland, Riparian and Riverine Subgroup

Middle Island Creek

The National Resource Conservation Service (NRCS) has agreed to focus $300,000 of EQUIP funding towards improving the water quality along Middle Island Creek in Pleasant and Tyler Counties. The NRCS will work with local livestock producers on waste and nutrient management and the Service will provide technical support and install livestock exclusion fences and restore any wetlands along the project site. In Fiscal Year 2000, one waste management system was installed by the NRCS and SWCD and approximately 5,000 feet of fence was installed through the Partners for Wildlife Program. Two more projects are being scheduled for Fiscal Year 2001.

Killbuck Creek

Also in Fiscal Year 2000, the ORVE Team funded, in part, the placement of a water line and water tanks to keep cattle out of the creek for a livestock producer adjacent to Killbuck Creek in Coshocton County, Ohio. In addition, a feeding pad was constructed to reduce the entry of waste material into Killbuck Creek, the home of the endangered purple cat's paw pearly mussel (Epioblasma obliquata obliquata). The site will be monitored by the Reynoldsburg Field Office to determine water quality benefits and if exclusionary fencing is still warranted.

Summary of Fiscal Year 2000 Accomplishments

Other Endangered Species

Endangered Species Distribution

Progress was made in Fiscal Year 2000 in developing GIS-layer distribution lists by state and county for all federal and state listed endangered, threatened, and candidate species located within the Ohio River drainage. The project will be completed in Fiscal Year 2001, at which time the information will be made available on the ORVE website.

Crayfish

A list of the endemic crayfish species of the ORVE and their conservation status was developed. The Endangered Species Subgroup is considering making this group a priority in future work.

West Virginia Northern Flying Squirrel

The ORVET provided $4,000 to the USGS, BRD laboratory in Leetown, W,Va., in Fiscal Year 1999 to conduct genetic studies on the endangered West Virginia northern flying squirrel, Glaucomys sabrinus fuscus. To date, numerous hair follicle samples have been submitted to the research to develop a suite of species-specific microsatellite DNA markers. The objectives of the research are to identify population structure, metapopulation extent and evolutionarily significant lineages for the squirrel. At the turn of the century much of the squirrel's habitat was destroyed by logging and fire. The research will to determine if some populations have been reproductively isolated and evolutionarily divergent from other populations. To manage for the future of the squirrel and achieve recovery, it is important to determine what populations have been reproductively isolated. The research is ongoing and is scheduled for completion this winter.

Running Buffalo Clover

The ORVET provided $4,000 in FY 1999 to conduct research on the biology of the endangered running buffalo clover, Trifolium stoloniferum on the Fernow Experimental Forest in West Virgina. This is a multi-year study and is ongoing. Preliminary results are showing the disturbance may stimulate growth or at least not prohibit growth and destroy the plant. In partnership with the West Virginia DNR and the USFS, running buffalo clover was being studied to determine its response to disturbance by different silvicultural practices and road construction. Running buffalo clover is thought to be a disturbance species and disturbance from logging may be essential in its management. Other biological needs of the plant will be determined by the research, such as light, moisture, and soil requirements, and pollinators.

Law Enforcement

Contaminants

Committee members conducted some fly overs and inspections of crude oil and oil waste pits during Fiscal Year 2000; however, progress on this task has been limited by the personnel deficit.

Fiscal Year 2001 Goals

Work Activity Guidance provides guidance to Service field offices working on the ORVE Team, Sub-groups and Standing Committees on high priority Ecosystem Approach Activities during Fiscal Year 2001 . This guidance is not intended to be all inclusive of Service activities within the geographic boundaries of the Ohio River Ecosystem, but to serve the purpose of identifying some important activities which can be accomplished by the Team and its Sub-groups working cross-region and/or cross-program and in cooperation with its other federal, state, non-governmental organization, and other partners.

ORVE Team Guidance

• Identify and pursue opportunities to collaborate with federal agency partners and other stakeholders in association with the Ohio River focus area identified by the Midwest Natural Resource Group, consistent with decisions made at the November 1998 Environmental Roundtable and with the Upper Mississippi Basin Partnership.

• Initiate the listing process on the crystal darter (the only known population is in a short reach of the Elk River in West Virginia) to recommend its designation as a candidate species.

• Continue to work closely with the Corps of Engineers, State fish and wildlife agencies, and all pertinent Service field offices on the Corps' Ohio River Mainstem Systems Study to ensure that concerns of the Service relative to fish and wildlife resources and associated habitats are fully considered in this effort and associated efforts to authorize a Water Resources Development Act.

Freshwater Mussels

• Continue research on propagation of juvenile mussels in hatcheries.

• Describe the genetics of endangered mussels in the ORVE to facilitate re-introductions and augmentations.

• Review list of mussel species on the previous Service C2 list. Compile data on species that may warrant listing.

Migratory Birds

• Work with Partners in Flight, North American Waterfowl Management Plan, and others to coordinate various bird conservation efforts underway within these organizations for the ORVE

• Work with bird conservation organizations, academia, and agencies to identify key migratory bird research needs for the ORVE.

• Continue evaluation of bottomland hardwood forest and riparian resources in the ORVE.

• Work to implement a coordinated bird conservation strategy in the ORVE with a focus on bottomland hardwood forest, riparian, grassland and other important habitats within the ecosystem.

Fiscal Year 2001 Goals

• Model the probably occurrence of target bird species most in need of conservation in the ORVE using GIS analysis.

• Identify various size classes of forest and grassland habitat based on Partners In Flight and other reference sources concerning theoretical minimum sizes for the identified species of concern using GIS analysis.

• Analyze data and prepare a final report for the research on grassland/savanna bird productivity monitoring in strip mines

Trust Fishes

• Make progress towards completing a status report on lake sturgeon in the Ohio River Basin.

• Review and prioritize the draft list of fish species of concern in the ORVE. Prepare GIS layers of the ranges of these species.

• Initiate status survey of longhead darter, if funded through the Fiscal Year 2001 flexfund process.

• Support the MICRA Mississippi River Basin Paddlefish Stock Assessment, if funded through the Fiscal Year 2001 flexfund process.

• Determine upstream distribution of exotic fish species in the ecosystem and prepare GIS layers.

• Identify dams in the Ecosystem which are serving as barriers to the upstream distribution of fish.

• Determine overwintering requirements of Ohio River fishes and identify overwintering habitat in the main river, backwaters, and embayments. Research supported under the Cumulative Impacts Studies funded by the Ohio River Mainstem Study.

• Scope the development of a baseline fisheries monitoring plan to measure the effects of Olmstead Lock and Dam on the lower Ohio River, in part through a meeting planned with the Corps of Engineers in late fall.

• Add projects identified by the sub-group as appropriate to the Service's Fisheries Operating Needs System (FONS).

Cave/Karst Habitat

• Develop a list of federally listed species of concern which occur within ORVE cave/karst systems.

• Identify conservation groups active in cave/karst conservation within the ORVE.

• Identify significant cave/karst habitats within the ORVE. Establish baseline by identifying status and threats for each.

Fiscal Year 2001 Goals

• Develop and prioritize projects to address information and conservation needs.

Wetlands

• Develop a firm membership for the subgroup including representatives from each state in the watershed. Recruit non-Service members.

• Develop and prioritize issues affecting the wetland and riparian resources within the ecosystem.

• Identify which issues the subgroup can have the greatest impact on and develop and implement a work strategy to address those issues.

• Develop an outreach plan.

Endangered Species

• Continue developing GIS layers of distribution by state and county for all Federal and State listed endangered, threatened, and candidate species located within the Ohio River drainage. Make information available on the ORVE website.

• Integrate state-by-state GAP analysis data into the ORVE GIS data system. Use GAP data to assist in the development of endangered species focus area.

Land Conservation

• Develop goals and criteria, with assistance from subgroup leaders, for land protection in the ORV Ecosystem.

• Working with subgroups and partners, acquire copies of existing landscape level natural resource protection plans for areas within the ORV ecosystem. Compile land protection needs into a draft document outlining various resource needs within the ORVE. Present draft document for review to the various subgroups and the ORVET. Examples of existing sources: Gulf Hypoxia strategy — Dr. William Mitsch, Univ. of Ohio; TNC's Physiographic Conservation Plans; Partners in Flight Bird Conservation Plans; NAWMP; ORV Subgroup Focus Areas; State Heritage Program maps, reports, plans, data.

• Work with ORVET GIS coordinator to identify outstanding GIS layers necessary to predict and display land protection needs. Begin development of a protected lands GIS layer/database.

• With subgroups (Mussels, ES, Cave/Karst, Migratory Birds, Fishes), explore development of an ORV Endangered Species Habitat Protection Strategy that would result in the development of a PPP for all three regions. Focus should be on those species whose recovery plans plans identify land protection/acquisition as a Priority I task.

• Review the new national Land Acquisition—Remodeling for the Future Policy Plan and R4-R5 regional LA policies and procedures for

Fiscal Year 2001 Goals

Land Conservation (continued)

ecosystem teams. Consider and integrate into our own planning process. Tie into Director's priorities.

• Identify and invite partners i.e. TNC, NRCS, state resource agencies, watershed associations, land trusts, to participate in Land Protection Planning Subgroup (this could be moved up in priority).

• Identify restoration and partnership opportunities. Look at high value watersheds.

• Using LAPS as a resource, develop draft ranking criteria for ORVET review of PPI's and PPP's. Check with national LA-Policy Plan.

• Begin planning for an Fiscal Year 2002 land protection workshop that will focus on land protection needs, a particular focus area or endangered species. End product to be a working draft document which specifies locations/acreage/actions needed/partners involved, to reach goals.

• Use concept of "conservation corridors/areas" or "resource concentration areas" and "protection goals" in the development and writings of any plans.

Law Enforcement

• Expand contaminant work (fly overs and inspections of crude oil and oil waste pits) into Western Pennsylvania, Indiana, Ohio, Kentucky and West Virginia.

• Expand patrols (boat and aircraft) along the Ohio River and its tributaries to halt the unlawful harvest of freshwater mussels.

• Expand efforts to protect fish species from unlawful commercialization.

• Establish a stronger working relationship between the various Federal and State wildlife law enforcement agencies.

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Lower Missouri River Ecosystem

Fiscal Year 2000 Annual Report
Region 3

--Army Corps of Engineers Photo

After the 1993 floods, the Big Muddy National Fish and Widlife Refuge was established to help restore some of the natural processes and habitats of the Missouri River.

Ecosystem Description

It's the "Big Muddy" – the starting point and travel route for Lewis and Clark's historic journey; it's what gives the "Mighty Mississippi" its might; at 2,250 miles, it's the nation's longest river. With origins in the Rocky mountains, the Missouri River rolls through seven states on the way to its confluence with the Mississippi River at St. Louis, Missouri. In pre-settlement times, the Lower Missouri was adverse mixture of braided channels, chutes, sloughs, islands and sandbars –a mosaic of aquatic and terrestrial habitats supporting an incredible diversity of fish and wildlife species.

Known as the Big Muddy due to its high sediment load, the Missouri River today looks far different than it did to the famous explorers who followed its route westward. The upper river is a series of dams and reservoirs. The 811 miles of the lower river has been channelized to facilitate navigation and leveed to protect productive agricultural lands. As a result, the river is shorter by 127 miles, and important river functions, such as the seasonal flooding that supports backwater and bottomland habitats for fish and wildlife, have been modified.

A half-million acres of river and floodplain habitat have been lost. In essence, the river has been separated from its floodplain. The Lower Missouri's rich diversity of fish and wildlife species has felt the impacts of habitat alteration – species such as bald eagles, least terns, and pallid sturgeon have declined throughout the river system.

Among the most pressing challenges for resource managers on the Lower Missouri are effects of maintaining navigation on the river, and land uses within the floodplain. Dikes and levees that ease movement of barge traffic and protect farmlands and communities also change river flows; non-point source pollution from agricultural and urban runoff alters water chemistry and threatens native fish and wildlife; sedimentation from farms and construction sites covers mussel beds, fills in backwaters and chokes out native vegetation.

The Lower Missouri River Ecosystem Team

The Lower Missouri River Ecosystem Team consists of Region 3 field stations including the Columbia Ecological Services and Fishery Resources offices, Jefferson City Law Enforcement, the Missouri River Coordinator office, and Big Muddy, Swan Lake, DeSoto, and Squaw Creek national wildlife refuges. The team is relatively small, and so is not divided into subgroups or working groups. Members work regularly with other federal agencies, such as the U.S. Army Corps of Engineers, National Park Service, and U.S. Geological Survey/Biological Resources Division, as well as Missouri's Departments of Conservation and Natural Resources and various non-governmental partners.

Natural River Functions

Of primary concern to the team is the restoration and maintenance of the natural function of the river, including periodic flooding, while accommodating the social and economic uses of the river. The team has many public and private partners, with coordination among interests a key part of its efforts.

Fisheries

Assessing the ecosystem's fisheries populations plays a critical role in the team's overall goal of restoring river habitat and function. Paddlefish and the endangered pallid sturgeon are the focus of sampling, tagging, and data analysis efforts, and research was also conducted on several species whose status is in question, including the flathead chub, sicklefin chub, sturgeon chub, plains minnow, and western silver minnow.

Private Lands

Through the Partners for Fish and wildlife program, stream habitat enhancement work is being carried out on private lands to benefit the endangered Topeka shiner and Niangua darter.

Big Muddy NFWR

Future efforts of the Lower Missouri River Ecosystem Team are aimed at continued restoration of river habitats, with special focus on the Big Muddy Refuge, and highlighting the wide diversity of Missouri River resources through Lewis and Clark bicentennial celebrations in upcoming years.

Volunteers at Big Muddy National Wildlife Refuge helped post Refuge boundaries at the Jackass Bend Unit of the Refuge
--USFWS Photo

Summary of Fiscal Year 2000 Accomplishments

The following accomplishments are compiled from available information and relate specifically to items listed in the Fiscal Year 2000 Annual Work Plan for the Lower Missouri Ecosystem team.

Lewis and Clark

The Lewis and Clark Bicentennial has been a major thrust of the Lower Missouri Ecosystem team in Fiscal Year 2000. Team Leader Wilson, in collaboration with Region 6 Missouri River Ecosystem teams, was instrumental in giving direction to a Lewis and Clark effort that fits with the Service's fish and wildlife conservation mission. Through a Region 3 Lewis and Clark Bicentennial team, comprised of field and Regional Office staff, budget submission were transmitted to Washington, an outreach plan was drafted, a Service Lewis and Clark web page was designed and implemented and an exhibit space at the Gateway Arch was successfully negotiated.

Education Outreach

The Lower Missouri Ecosystem team secured funds in Fiscal Year 2000 to specifically complete an educational and activities workbook for educators. The guide, *Discover a Watershed - The Missouri River*, will address natural resources and related issues unique to the Missouri River and its floodplain. Included in the manual will be a section on Lewis and Clark and reference to the natural resources that were documented during the Corps of Discovery.

Habitat Restoration

Species listed in the Region 3 Resource Conservation Plan were benefitted by the habitat restoration efforts on both private and public lands during the fiscal year. Native prairie restoration projects in the southwestern part of Missouri will specifically benefit migratory songbirds as well as the greater prairie chicken. Wetland restoration efforts, particularly on private lands, are typically located in watersheds upstream of state or federal lands. Besides their direct benefit to palustrine species, wetland restoration projects have secondary water quality benefits.

Over the past year, the Lower Missouri Ecosystem team has been actively represented by the Regional Management Team in the collection of wetland restoration data for inclusion as a GIS data layer. Along with the Natural Resources Conservation Service, Environmental Protection Agency and other member agencies of a four-state consortium, the team now has information on the location and extent of federally sponsored wetland restorations. This information is the first phase in prioritizing and coordinating among other agencies plans for future wetland restoration efforts.

Summary of Fiscal Year 2000 Accomplishments

Exotic Species

The Lower Missouri Ecosystem is adversely affected by introduced nuisance aquatic and terrestrial species. Habitat restoration efforts in the ecosystem on both private and public lands is strongly influenced by the replacement of exotic pest species with native flora and fauna. Through field station activities on the lower Missouri River the team has access to information on the status of nuisance aquatic fish and mussels. Recommendations on land and water resource development activities throughout the ecosystem typically include considerations of the activities' impact on invasive species.

In April 2000, an Asian Carp Workshop was held to develop a plan to prevent and control the introduction of non-sterile Asian carp. About 75 participants, many from the Lower Missouri ecosystem, were in attendance. The successful workshop initiated a process for development of a Mississippi River Basin Asian Carp Management and Control Plan. Asian carp have become naturalized in many rivers and streams and are rapidly expanding their range and populations.

National Wildlife Refuge System

Another strength of the Lower Missouri Ecosystem team in Fiscal Year 2000 was its pursuit in expanding the Marais des Cygnes NWR. The Marais des Cygnes NWR is located in Kansas but the original proposal included a comparable acreage in Missouri. A Preliminary Project Proposal for the expansion has been completed and approved. Through efforts of the team a review of the expansion site in Missouri was conducted. A briefing with the Regional Refuge Chief culminated the review. The Division of Refuges and Wildlife will rank the Marais des Cygnes PPP with other Region 3 PPP's and possibly evaluate the proposal through the new Land Acquisition Priority System.

Fiscal Year 2001 Goals

The following activities have been established for team members of the Lower Missouri River Ecosystem in fiscal year 2001.

Lift Conservation of Migratory Birds to a Higher Level

- Complete Region 3's commitment to preparation of a Lewis and Clark Bicentennial website and final plans with funding for the Service's exhibit at the Jefferson National Expansion Monument in St. Louis, Missouri.

- Develop a proposal for preparing a guide to the birds recorded by Lewis and Clark as a Service education and outreach tool.

- Species listed in the Region 3 Resource Conservation Priorities Plan will receive special attention in planning for wetland and native grassland restoration projects throughout the ecosystem.

Strengthen the Eosystem Approach to Fish and Wildlife Conservation

- Initiate discussion with Federal, State and Tribal partners for at least one watershed improvement projects (eg. Squaw Creeks) within the Lower Missouri River Watershed. This area represents one of the thirteen focus areas identified by the Midwest Natural Resources Group.

- In partnership with EPA, finalize the publication, *Discover a Watershed: Missouri River.*

Lead Efforts to Prevent the Introduction and Spread of Invasive Species

- Field stations will continue to control and monitor invasive species such as zebra mussels and Asiatic clams and provide education and outreach efforts to increase public understanding of invasive species.

- Pursue opportunities to collaborate with other Federal, State and Tribal partners in developing a strategy to prevent and control the introduction of non-sterile Asian carp.

Set the Course for the Future of the Refuge System

- Through Regional Refuge Chief and Refuge Supervisor complete the required process (PPP selection and LAPS entry) within Realty to determine future direction of the Marais des Cygnes NWR expansion.

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Ozark Plateau Ecosystem

Fiscal Year 2000 Annual Report
Region 3

-USFWS Photo by Kelly Srigley-Werner

The federally-threatened Missouri bladderpod grows on a 240-acre site created through the Partners for Fish and Wildlife Program, The Nature Conservancy and the Missouri Department of Conservation.

Ecosystem Description

The upland region of the Ozark Mountains rises like an island in the midst of the Middle Western plains. The Ozark Plateaus region is the northern part of the Interior Highlands, which represents the only extensive "mountainous" topography between the Appalachian and Rocky Mountains. The Ozark area (approximately 50,000 square miles) is in the states of Arkansas, Oklahoma, Missouri, and a small portion of Kansas. It is a dome shaped uplift composed of four distinct areas (Boston Mountains, St. Francois Mountains, Salem Plateau, and Springfield Plateau). The uplift is characterized by horizontal bedrock, numerous caves, and several streams or rivers flowing out in all directions.

The Ozarks are bordered on the southwest by the Neosho River, on the south by the Arkansas River, the Black River on the east, and the Osage and Missouri Rivers form the northern boundary. The Boston Mountains in northeast Oklahoma and northwest Arkansas have the highest elevations and generally range between 1,500 to 2,300 feet above sea level, with some elevations over 2,500 feet. The St. Francois Mountains average 1,500 feet in elevation, are located in southeastern Missouri, and extend southward into eastern Arkansas. The Salem Plateau is a rough, rolling area with elevations from about 500-1,000 feet, located mostly in southeast Missouri. The Springfield Plateau is composed of gently rolling land in southwest Missouri, northwest Arkansas, and northeast Oklahoma. The Ozark region is characterized by thin, rocky soils; numerous caves and associated sink holes, springs, and underground rivers; clear, cool streams; and waterfalls.

The main vegetation type of the Ozarks is an upland oak-hickory forest, although shortleaf pine does occur on escarpments to the north and on the drier south slopes. Red cedar glades are located on xeric exposures and beach-maple forests are found in cool, moist north-facing ravines. Bottomland hardwoods are found in the floodplain of large rivers. This large expanse of timberland provides breeding habitat for numerous species of neotropical migratory birds. Remnants of the original tall grass prairie are scattered throughout the Springfield and Salem Plateaus.

This ecosystem is easily the most biologically and botanically diverse region of the nation. While much of this ecosytem's

Ecosystem Description

unique biological and botanical diversity is still comparable to that of pre-settlement conditions, the area has experienced significant alteration by humans. However, because of the region's geological and ecological stability throughout much of the area, this is one of the most recoverable ecosystems in the country. Other communities represented include shortleaf pine forest; limestone, sandstone, dolomite, and rhyolite glades; and numerous "specialty" communities (e.g., fens, cliffs, sinkhole ponds) that provide habitat for numerous Federal species of concern and state listed plants and animals.

Federally listed species in this ecosystem include the bald eagle, gray and Indiana bats, Ozark cavefish, Niangua darter, cave crawfish, pink mucket and Curtis' pearly mussels, Neosho madtom, Missouri bladder-pod, Geocarpon, Mead's milkweed, eastern prairie fringed orchid, and western prairie fringed orchid. Approximately 50 known federal candidate species and species of concern call this area home. In addition to these species, the Ozark Highlands provides habitat for numerous state listed plants and animals. Within the Ozark Highlands, 56 species and subspecies of fish, 14 species of amphibians and reptiles, 20 species and subspecies of crayfish, 23 species and subspecies of mussels, and over 100 species of plants are largely restricted to this region.

Agriculture (wheat, row crops, livestock, fruit, and truck farms) is a well developed land use in the broad, flat uplands with extensive oak-hickory forests remaining in areas of rough rocky terrain. The U.S. Forest Service is a major landowner in the Ozarks having units composed of the Clark, Mark Twain, and Ozark National Forests. The Current, Eleven-Point, and Buffalo Rivers are designated as national wild and scenic rivers and adjacent lands are managed by the National Park Service. Extensive lead deposits are mined in the northeast portion of the Ozarks, with other mining for zinc, coal, iron, and barite. Tourism is one of the region's chief industries based upon the natural wonders and the hill culture. Trout fishing is a multi-million dollar business, as is the rapidly developing music industry at Branson, Missouri.

Due to of the rough, rocky terrain, thin soils, mineral deposits, and relatively sparse population, in the Ozarks, the threats to the natural resources are somewhat different than in other parts of the country. One of the major threats to the environment of the Ozarks is water quality reduction and contamination. Numerous species, that were described above as imperiled, are located in the Ozarks, generally associated with caves and free flowing streams. Water quality is impacted by mining operations (metals, sand and gravel, etc.), increased confined animal facilities (chickens, pigs, etc.), residential and industrial wastes, vegetation removal, etc. Many of these water quality problems are due to the interaction of surface and subsurface waters. The key to

Ecosystem Description

protecting water quality is to prevent contamination from entering the ground water systems. Contamination that sinks into the ground may quickly reappear in caves, wells, or springs. Another threat is the loss of biodiversity and forest fragmentation by residential development (both urban and rural) and associated support facilities. Other identified threats to this unique ecosystem include: sand and gravel dredging in streams and rivers; soil erosion and deposition into streams and rivers; cessation of ecological processes (e.g., controlled burning) essential to the maintenance of such habitats as oak and shortleaf pine savannahs; invasion by exotic, competing species (e.g., big-head and grass carp, zebra mussel, garlic mustard, purple loosestrife, feral horses and pigs); construction of reservoirs and smaller impoundments on most watersheds; and lack of federal, state, and private funds necessary to conserve and manage the region's rich biological and botanical diversity.

Because of the beauty of the Ozarks, the cultural history, and relatively low land prices and development costs, the Ozarks is one of the fastest growing retirement areas in the nation. Unfortunately, however, this trend has resulted in greater threats to the region's rich biological diversity.

-USFWS Photo by Kelly Srigley-Werner

Big Spring in Shannon County, Mo., is the largest spring in the world to flow from a limestone aquifer.

Summary of Fiscal Year 2000 Accomplishments

Team Organization

One meeting for team members and invited guests was held in May 2000 at the National Park Service's Ozarks Scenic Riverway Headquarters, Van Buren, Missouri. The meeting included discussion of imperiled mussel species, law enforcement progress with abandoned oil pits and other investigations, karst conservation, partnerships, and natural resource damage claims underway in the Ozarks. The Team formed subteams to address important resource issues including flora and fauna subgroups (4), outreach, and karst conservation. The Team has faced challenges to implementing the ecosystem approach by rallying around common issues and encouraging team members to get out and touch the resource to appreciate it. Meetings have been structured accordingly.

In spite of its small size, the Ozark Plateau Ecosystem Team continues to make strides in natural resource protection and management throughout this sensitive system. The Team participates in the Midwest Natural Resources Group and partnerships continue to form around issues of mutual concern. The Team is engaging in multi-faceted, cross-regional efforts designed to have far reaching effects on the natural resources of the Ozarks.

Ms. Kelly Srigley-Werner, Missouri Private Lands Coordinator (CMFO), has maintained the position of Team Leader this year. Under Ms. Srigley-Werner's guidance, the team has formed subgroups, described above, and has placed renewed energy and enthusiasm into the Service's efforts to implement the Ecosystem Approach in the Ozarks. Ms. Srigley-Werner will remain in the position of team leader during Fiscal Year 2001 and subgroup leaders are expected to be named at the October 2000 meeting of the Ecosystem Team.

Karst Initiative

The Karst Initiative has taken hold with full support of the Ozarks Team. This grass roots initiative is a prime example of the ecosystem approach, linking private and public land activities and partners in an effort to address threats to a unique geological system that supports many species of interest to the U.S. Fish and Wildlife Service (Service) and its partners. Preservation of this resource is of great importance for not only these species, but for ensuring water quality in the Ozarks. During Fiscal Year 2000, the subgroup leader and others conducted briefings for important Service entities and partners on the effort. The Region 4 Directorate, Arkansas Game and Fish Commission, Arkansas-Red Ecosystem Team and others have already expressed support for the initiative; Fiscal Year 2001 briefings will include the Directorate, Region 3, Missouri Department of Conservation and others.

Endangered Mussels

Propagation of endangered mussels is a priority activity at the Neosho National Fish Hatchery, in addition to their work with endangered fish species and interjurisdictional fish. Preservation

Summary of Fiscal Year 2000 Accomplishments

of unionids extends to partnership efforts on the Meramec Basin and Mingo NWR continues to restore bottomland hardwood for its multiple benefits, including benefits to migratory song birds. The Ozarks region is known as a source/sink population area for neotropical birds. Efforts to conserve these bird species through protection of their habitats are occurring through the North American Bird Conservation Initiative. The Ozarks Team has made connections with NABCI's efforts and intends to continue in this partnership. Cave species are receiving attention, with new species being discovered that exist nowhere else in the world. Endangered species, such as the Indiana bat, are the continued subject of research aimed at species recovery. Cave gates have been installed to guard against human intrusion and vandalism of important maternity colonies.

Refuge Expansion

The Team submitted a proposal for expansion of the Marais des Cygnes NWR into Missouri. If the proposal is of sufficient importance regionally, the Team is hoping for approval to expand the refuge from the Kansas border into Missouri. This would protect an area along the Marais des Cygnes River composed of forested wetlands, open marsh, rivers, native grassland, reclaimed strip mines and crop fields. The upland area is within the range of the threatened Mead's milkweed and other imperiled mussel species are thought to occur in the river. The river also provides an important migration route for the paddlefish. A site visit was conducted in Fiscal Year 2000 between regional office and field office representatives to discuss the resource values of the area and determine whether to pursue acquisition. The group provided an update to the Regional Chief, National Wildlife Refuge System, and awaits her determination of the priority of this proposal.

Fiscal Year 2001 Goals

The following activities have been established for team members of the Ozark Plateau Ecosystem in Fiscal Year 2001.

Lift the Conservation of Migratory Birds to a Higher Level

• Participate fully in the North American Bird Conservation Initiative through partnering with other agencies, non-governmental organizations, and conservation organizations to protect and increase available habitats and achieve bird conservation goals set forth in NAWMP, PIF, and Shorebird Conservation Plans.

• Species listed in the Region 3 Resource Conservation Priorities Plan will receive special attention in planning for the continued restoration of riparian and associated habitat in the Niangua River, James River and Brush Creek watersheds, 450 acres of savannah/grasslands and 100 acres of wetlands throughout the ecosystem.

• Improve the understanding of the unique source populations of migratory song birds in the ecosystem by completing surveys and other scientific studies of forest breeding birds.

Strengthen the Ecosystem Approach to Fish and Wildlife Conservation

• Participate with other State, Federal and Tribal partners in organization of the White River Comprehensive Plan and investigate the effects of water resource development activities on fish and wildlife resources in the basin.

• The Ozark Plateau will continue to receive special attention as one of the thirteen focus areas identified by the Midwest Natural Resources Group. Special emphasis will be placed on the development of effective partnerships among the many Federal and State entities within at least one watershed of the Ozark Plateau to improve water quality and stream habitat.

• Initiate discussion with State and Federal partners for the improvement of the Meramec Basin with emphasis on its declining community of native mussel species.

• Mitigation continues to be a high priority in the Ozarks and mitigation hatcheries will continue to cooperate with state agencies to provide for a healthy cold water fishery for the benefit and enjoyment of the American public in Northern Arkansas and Southwestern Missouri.

• Continue investigating and perfecting mussel propagation techniques in National Fish Hatcheries and in association with State partners and universities in Arkansas and Missouri. Expand this work in FY 2001 to improve techniques for reintroduction of native mussel species into suitable habitats within their historic range.

Fiscal Year 2001 Goals

• Promote the KaRST Initiative as a primary team focus to address water quality, habitat modification, and species composition issues in the Ozarks Ecosystem. As part of this initiative, the Team will work to identify unique and undescribed flora and fauna within the Tumbling Creek Cave ecosystem in FY 2001.

Lead Efforts to Prevent the Introduction and Spread of Invasive Species

• Form cooperative partnerships and advance efforts to control red cedar and Sericea lespedeza on 150 acres of prairie and glade habitats.

• Work with State, Federal and local partners to identify methods and strategies for zebra mussel and Asiatic clam control in the Meramec Basin.

• Continue to develop control methods for purple loosestrife, garlic mustard, and teasel invasion in the Ozark Plateau.

Set the Course for the Future of the National Wildlife Refuge System

• As identified in recommendation WH17 of Fulfilling the Promise document, team members support the development of a nationally coordinated approach for prioritizing lands and waters to support strategic growth of the Refuge system. The team supports the proposed expansion of the Marais des Cygnes NWR into Missouri and stands ready to assist with Regional efforts to evaluate this expansion.

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